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TSC-  
UMTA-  
73-15  
v.6

O. UMTA-MA-06-0031-73,VI



ELECTROMAGNETIC ENVIRONMENT MEASUREMENTS  
OF PRT SYSTEMS AT "TRANSPO®72"  
VOLUME VI

Earl E. Jamison



JANUARY 1974

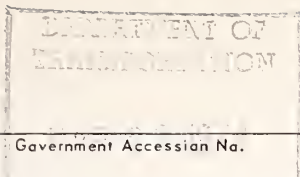
FINAL REPORT

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VIRGINIA 22151.

Prepared for  
DEPARTMENT OF TRANSPORTATION  
URBAN MASS TRANSPORTATION ADMINISTRATION  
OFFICE OF RESEARCH, DEVELOPMENT AND DEMONSTRATIONS  
Washington DC 20590

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## Technical Report Documentation Page

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16. Abstract <p>An X-Y plot is made of the radiated electromagnetic signals and noise between 1KHz and 50KHz at each of the four Personalized Rapid Transit (PRT) sites at Dulles International Airport. The PRT Systems were operated simultaneously in an effort to determine if any interaction existed between systems. A spectrum analyzer was used to view the frequency spectrum broadband prior to recording and a Polaroid scope camera was used in conjunction with the spectrum analyzer to photograph signals between 50KHz and 50MHz. This frequency range was sufficiently broad enough to cover all command and control frequencies of the four PRT systems.</p> <p>The purpose of the measurements program was to establish some base line information on the electromagnetic signal characteristics in the Dulles area in the event there is an interaction between PRT Command and Control Systems and the Federal Aviation Administration Air Traffic Control equipment.</p> <p>The measurements obtained during this test will be used to assess the signal interaction from adjacent systems by comparison with data obtained with no systems operating and with each system operating individually.</p>			
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## PREFACE

The work described in this report was performed as part of a test program conducted to evaluate the Safety and Performance characteristics of the four Personalized Rapid Transit Systems (PRT) on display at Transpo<sup>®</sup> 72. Sponsored by the U.S. Department of Transportation, Transpo<sup>®</sup> 72 was the first United States International Transportation Exposition and was intended to demonstrate to the general public new technologies in transportation.

The PRT demonstration program was the responsibility of the Urban Mass Transportation Administration (UMTA) and was conducted to provide detailed engineering test data in addition to providing mature candidates for an Urban demonstration.



## RADIATED FIELD NOISE MEASUREMENTS

### PRT SYSTEMS - TRANSPO® '72

#### 1. INTRODUCTION

This technical report presents the data obtained in the performance of tests for radiated field noise at the Personal Rapid Transit (PRT) system at TRANSPO® '72 - Dulles Airport, Washington, D. C. This report covers the test defined as Item 3 of Contract DOT-TSC-375, and as performed by National Scientific Laboratories, Inc.

Item 3 calls for the performance of radiated field noise measurements at each PRT system in the frequency range from 1 KHz to at least 50 MHz, with all of four PRT systems (TTI, FORD, DASHAVEYOR, MONOCAB) in operation. Data obtained at all four PRT sites will enable characterization of the noise increase attributable to the other systems operations, when considered in comparison with the operational noise data collected for each PRT system singularly and documented\* previously by NSL.

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\* Technical Reports, Item 2 - TTI System; Ford System; Dashaveyor System; and Monocab System, September 1972, Contract No. DOT-TSC-375, Department of Transportation, Transportation Systems Center, 55 Broadway, Cambridge, Massachusetts 02142

The measurements reported in this document were made during the following time periods:

Site 3: July 24, 1972 (1400 - 1520)

Site 4: August 1, 1972 (1400 - 1500)

Site 11: July 28, 1972 (1400 - 1505)

Site 8: July 26, 1972 (1400 - 1515)

## 2. METHOD OF MEASUREMENT

All measurements were made using the same test setups and instruments as used during individual PRT system tests described in report Item 2.

### 2.1 Instruments

The measurements made in the frequency range from 1 KHz to 50 KHz were performed using a Fairchild Model EMC-10 Interference Analyzer. This device is a battery operated calibrated RFI/EMI meter, which, when operated as a narrowband tunable device, covers the frequency range from 1 KHz to 50 KHz. The receiver incorporates a meter circuit of such design that signal levels are expressed in decibels on a linear scale. In addition, the receiver incorporates circuitry providing buffered voltage outputs in proportion to meter indications and tuned frequency. A Hewlett Packard Model 3005B X-Y Plotter was driven from the receiver.

Signals were obtained from the electro-magnetic environment by use of either an NSL top loaded whip antenna, a Fairchild PEF-10 Electric Field Antenna, or a Fairchild ALP-10 Magnetic Field Antenna. The latter two antennas are directional in the horizontal plane, therefore, measurements were made for North/South and East/West orientations.

The measurements made in the 50 KHz to 60 MHz frequency range were performed using a Hewlett Packard Model 8552/8553A Spectrum Analyzer. The analyzer is an extremely versatile instrument in that it has numerous frequency scan and bandwidth settings throughout the frequency spectrum of a few cycles up to 100 MHz. The analyzer was used in four frequency bands - 50 KHz to 100 KHz, 100 KHz to 1.1 MHz, 1 MHz to 21 MHz, and 10 MHz to 60 MHz. Data was recorded photographically with a Hewlett Packard 198A oscilloscope camera.

Signals were obtained from the electro-magnetic environment in the 50 KHz to 21 MHz frequency range by using an NSL verticle top loaded whip electric field antenna mounted on a cathode follower. This antenna is non-directional in the horizontal plane. In the 20 MHz to 60 MHz frequency range, an EMCO Model 3104 biconical electric field antenna was utilized. This antenna is directional in the horizontal plane, therefore, measurements were made in the North/South and East/West orientations.

During the tests, the various antennas were attached to the top of a mast mounted on the NSL instrumentation van. An antenna rotator was incorporated in the antenna mast to enable rotation in azimuth. The antenna height was approximately 12 feet above ground.

The various instruments received ac power from a motor generator positioned 150 feet from the van.

## 2.2 Test Sites

The test sites used during the performance of the measurements were four of the sites used in the Item 2 reports. They were site No's. 3, 4, 8 and 11. Site 3 is between TTI and FORD, Site 4 is between FORD and DASHAVEYOR, Site 11 is between DASHAVEYOR and MONOCAB but in the proximity of the DASHAVEYOR installation, Site 8 is between DASHAVEYOR and MONOCAB but is in the proximity of the MONOCAB installation.

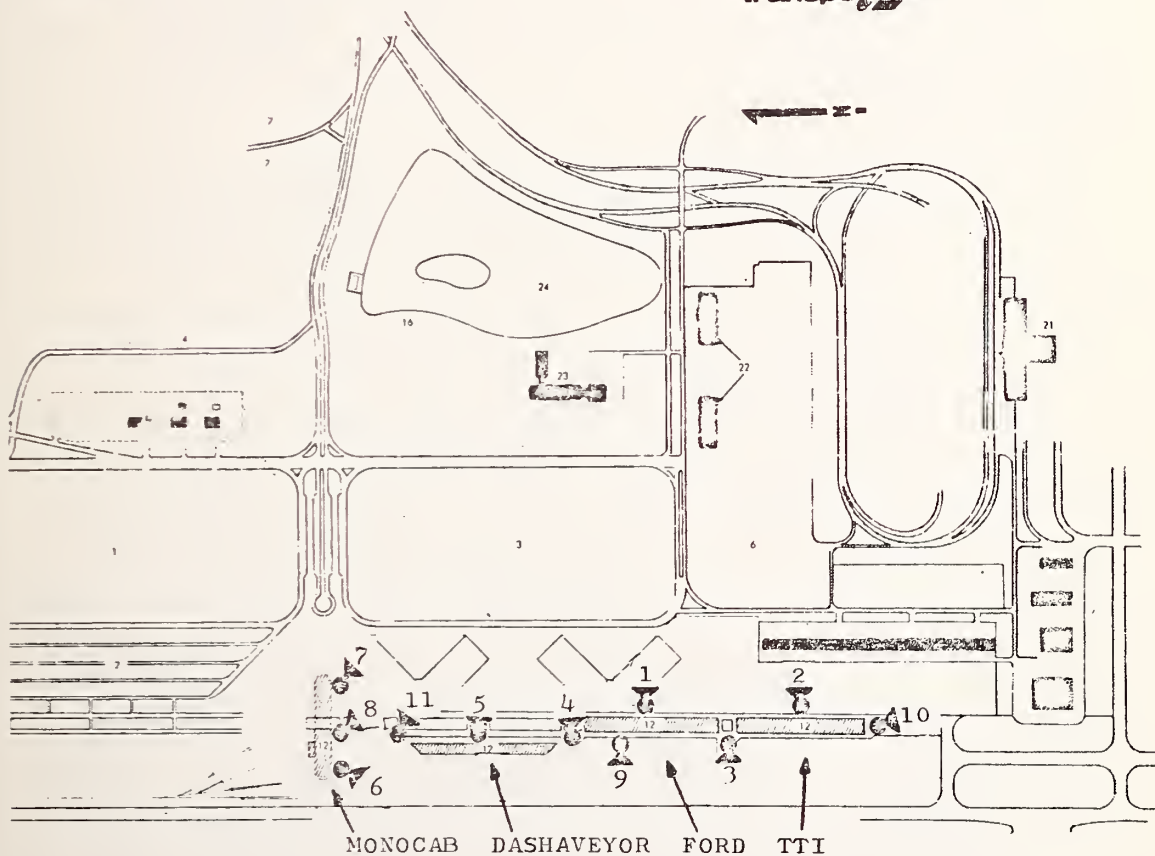
A site 9 was denoted in the Item 1 report where magnetic field tests were made. This test site was deemed unnecessary when making the Item 2 and Item 3 measurements and therefore was not used. The location of the sites is shown on the map in Figure 1.

A complete set of measurements was made at each of the four sites indicated above - magnetic field, 1 KHz to 50 KHz, and electric field, 1 KHz to 60 MHz.

LEGEND

- |    |                    |    |                               |    |                 |
|----|--------------------|----|-------------------------------|----|-----------------|
| 1  | Parking Area 1     | 11 | Exhibit Pavilion              | 21 | Terminal        |
| 2  | Parking Area 2     | 12 | Personal Rapid Transit System | 22 | Office Building |
| 3  | Parking Area 3     | 13 |                               | 23 | Hotel           |
| 4  | Parking Area 4     | 14 |                               | 24 | Lake            |
| 5  |                    | 15 |                               |    |                 |
| 6  | Parking Area 6     | 16 | Water Related Exhibits        |    |                 |
| 7  | Parking Area 7     | 17 |                               |    |                 |
| 8  | Parking Area 8     | 18 |                               |    |                 |
| 9  | Main Entrance      | 19 |                               |    |                 |
| 10 | Exhibitor Entrance | 20 |                               |    |                 |

TEST SITE NO.



SCALE (feet)  
0 200 400 600

FIGURE 1. PRT TEST SITE LOCATIONS

### 2.3 Measurement Technique

Data were obtained in the 1 KHz to 50 KHz frequency range by scanning manually the EMC-10 receiver, using a 50 Hz bandwidth setting. Two recordings have been made for each directional antenna (magnetic field, electric field) in two orientations (North/South, East/West). The scanning time per recording averaged four to six minutes.

The magnetic field recordings, denoted as MSR type test on the charts, are reproduced in the appendix as the upper half of pages A-2 to A-5, A-13 to A-16, A-26 to A-29, and A-39 to A-42. The dB scale refers to the level at the instruments input connector. Some of the charts have two amplitude scales. Located somewhere along the bottom of the chart is an upside down letter "Y" which denotes the point of changeover from the scale on the left side to the scale on the right side. The lower chart on each page is a plot of approximately one level in each major frequency increment of the chart directly above it. Peaks were selected whenever available. A correction factor for the antenna (antenna amplitude response is non-linear with frequency) has been included in the levels plotted in the lower graphs. In the upper charts, noise peaks recorded in the top major amplitude divisions are out of the calibrated range of the instrumentation system. Thus, the levels plotted for peaks that enter the upper divisions are plotted as having an amplitude of the highest level indicated numerically on the chart for that particular frequency.

The electric field chart recordings, denoted as ESR type test on the charts, are reproduced in the appendix on pages A-6 and A-7, A-17 to A-20, A-30 to A-33, and A-43 to A-47. Some of these charts also have two amplitude scales, and they are used in the same manner as described for the magnetic field recordings. In addition, noise peaks recorded in the top major amplitude division are out of the calibrated range of the system. The antennas employed have constant correction factors for all frequencies, and it has been included in the scale designations on these charts.

Electric field data for the 50 KHz to 60 MHz frequency range were obtained as photographic recordings of spectrum analyzer amplitude/frequency CRT displays. Two recordings have been made for each frequency band - 50 KHz to 100 KHz, 100 KHz to 1.1 MHz, and 1 MHz to 21 MHz. A non-directional antenna was used for the above frequencies. Four recordings were obtained for the 10 MHz to 60 MHz frequency band for which a directional antenna was employed, therefore, two recordings were made for North/South orientations and two recordings for East/West orientations. The antenna employed for the first three frequency bands has a constant correction factor for all frequencies, and this is included in the amplitude designations for the recorded data. The antenna employed for the high frequency band has a nearly constant correction factor above 20 MHz and this factor has been included in the amplitude designations

for the recorded data. Thus, the calibration levels given by the side of the photograph do not apply to frequencies from 10-20 MHz. The photographic recordings are reproduced in the Appendix on pages A-8 to A-12, A-21 to A-25, A-34 to A-38 and A-48 to A-52.

### 3.0 INTERPRETATION OF DATA

#### 3.1 General

The radiated field data collected during the tests are contained in Appendix A. Correction factors for the various pick-up antennas have been applied to the data signals to arrive at calibrated signal levels.

The correction factors used in this report are as follows:

<u>Antenna</u>	<u>Factor</u>
Fairchild PEF-10	32 dB
Fairchild ALP-10	See Curve in Figure 2
NSL Cathode-Follower W/Whip	18 dB
EMCO 3104 Biconical	10 dB

#### 3.2 Data

Notations are written on some of the charts which denote vehicle movement, etc., which occurred simultaneously with a signal. In most instances no notations are given. Thus, the

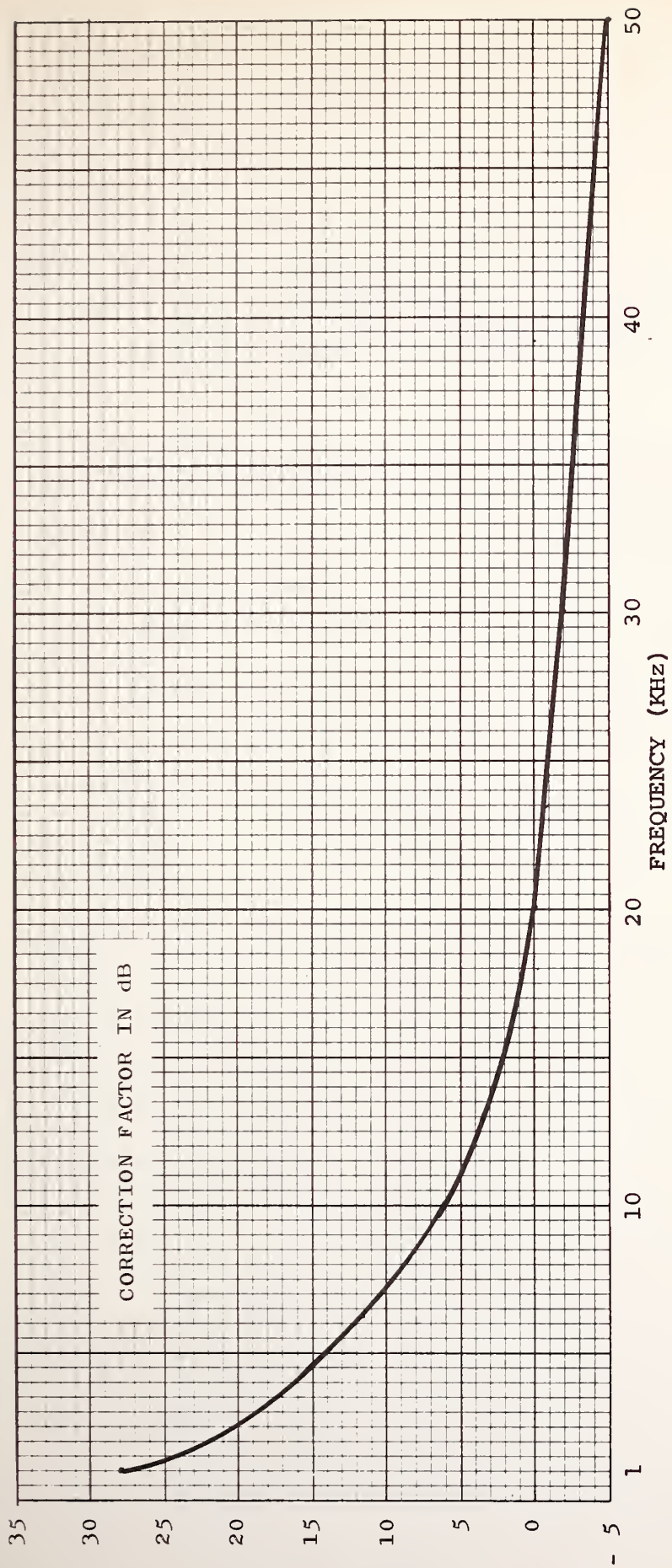


FIGURE 2. ALP-10 ANTENNA CORRECTION FACTORS

data is mainly usable for comparative purposes with that of Item 2 reports for sites 3, 4, 11 and 8.

#### 4. TIME LOGS

The time logs of events for PRT vehicles operation are contained in Appendix B.

APPENDIX A  
RADIATED FIELD MEASUREMENTS DATA

This appendix contains the data obtained during the various tests performed. The data is not presented in numerical sequence as the tests were performed, but rather by site location number from south to north - Site No. 3, 4, 11 and 8. Further, the data are arranged in the following manner - first, magnetic field charts, then electric field charts and photographs in order of frequency progression. Data is contained herein for Test No's. 148 to 159 (less No. 157), 393 to 404, 310 to 322, 221 to 230 and 265 to 268.

The page numbers for the various sites are as follows:

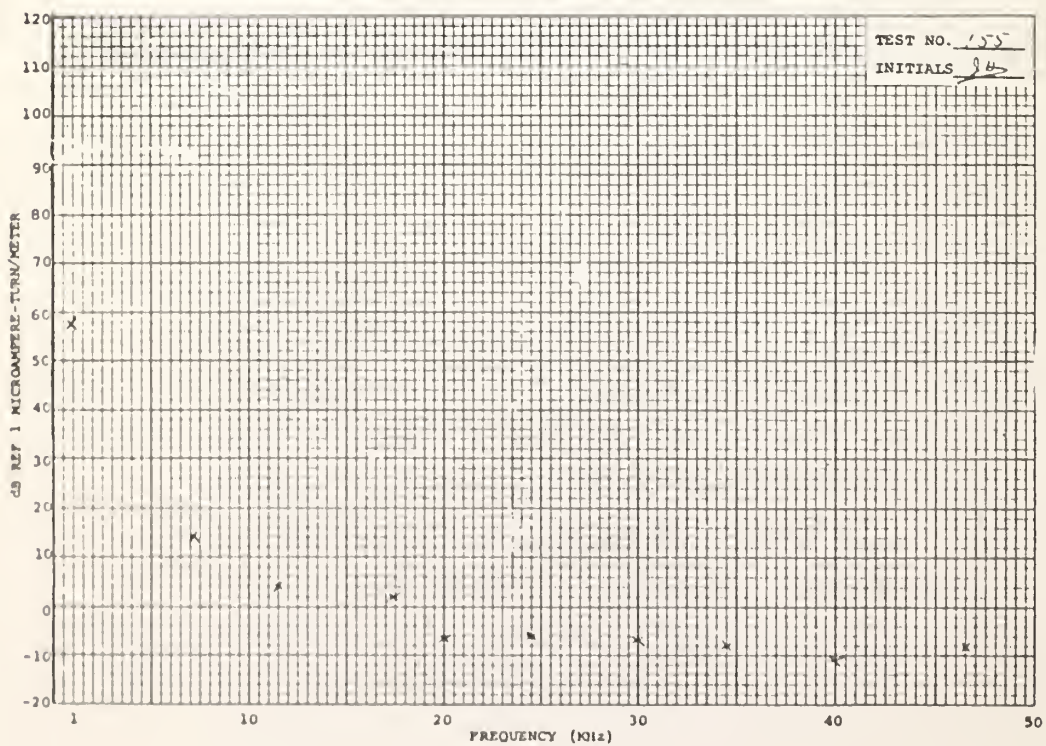
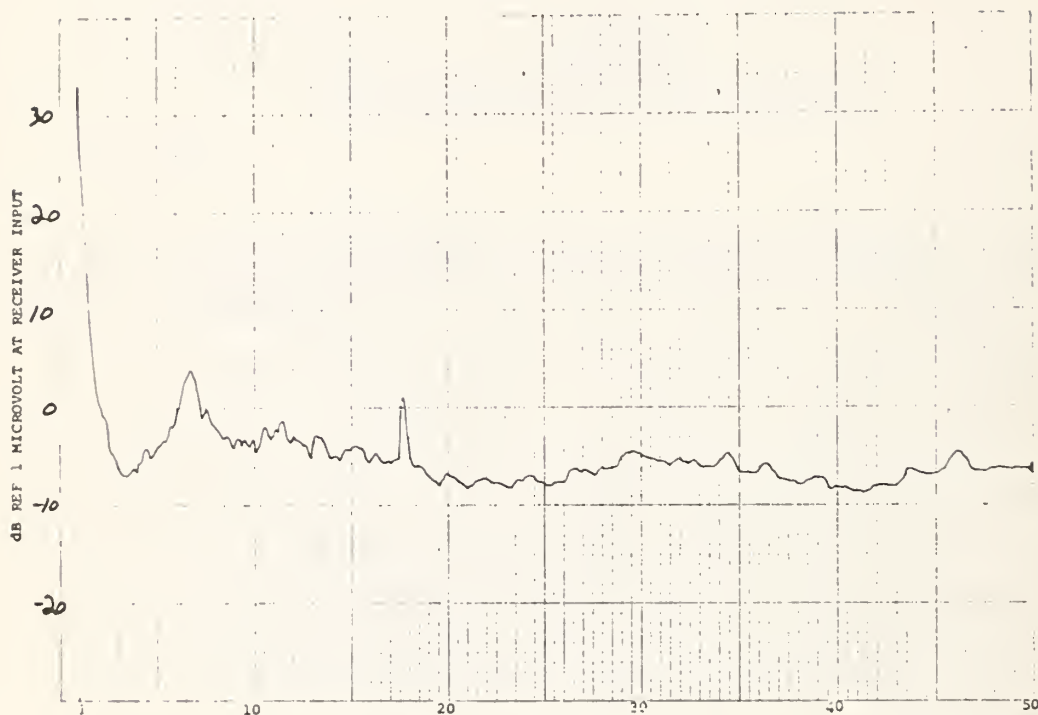
Site 3: A-2 to A-12  
Site 4: A-13 to A-25  
Site 11: A-26 to A-38  
Site 8: A-39 to A-52

TEST NO. 155  
TEST SPECIMEN 833

TEST TYPE MSR E-W  
TEST EQUIP. ENC-10

BANDWIDTH 50 Hz  
DATE 7-24-72

1500



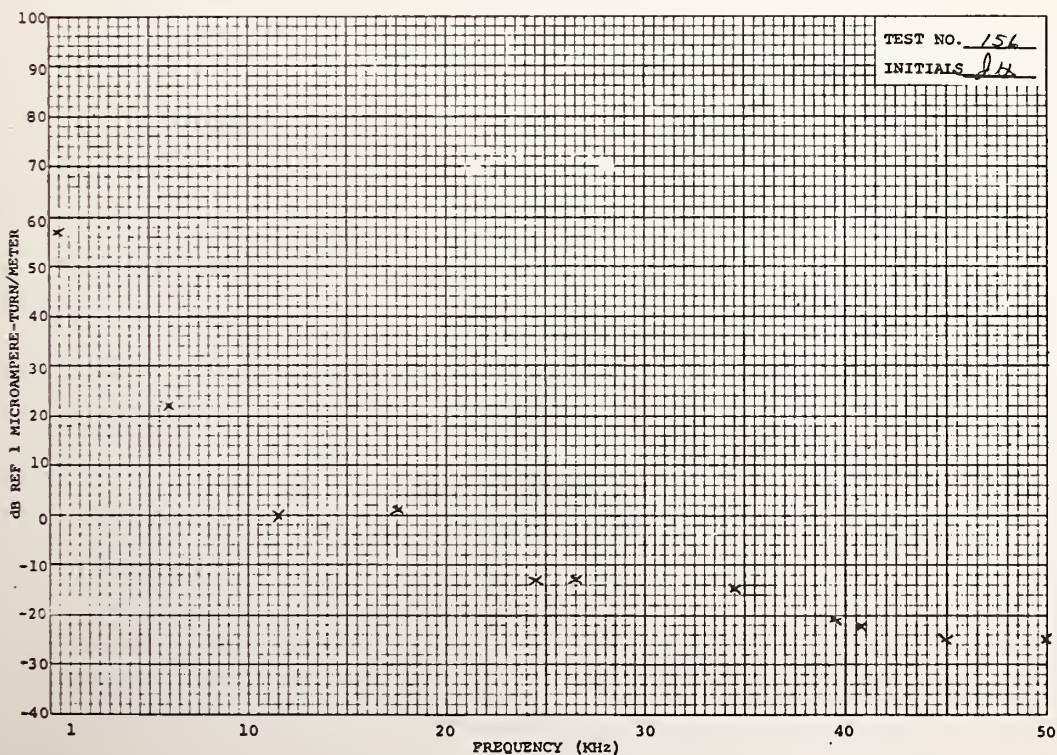
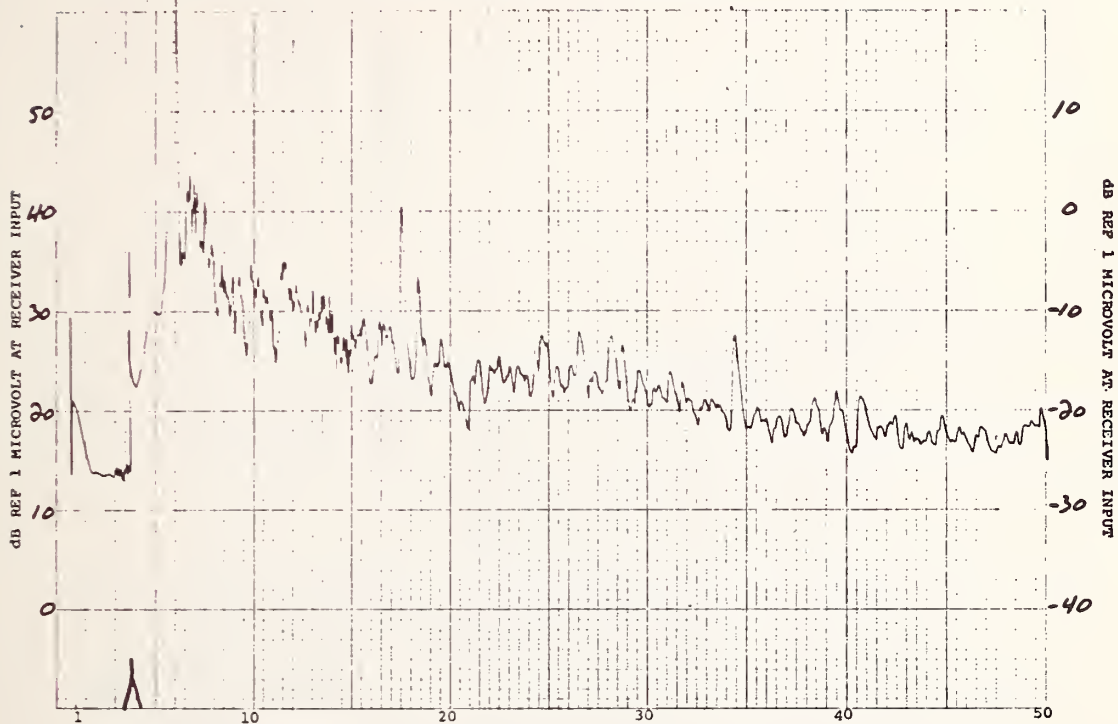
TEST NO. 155  
INITIALS JH

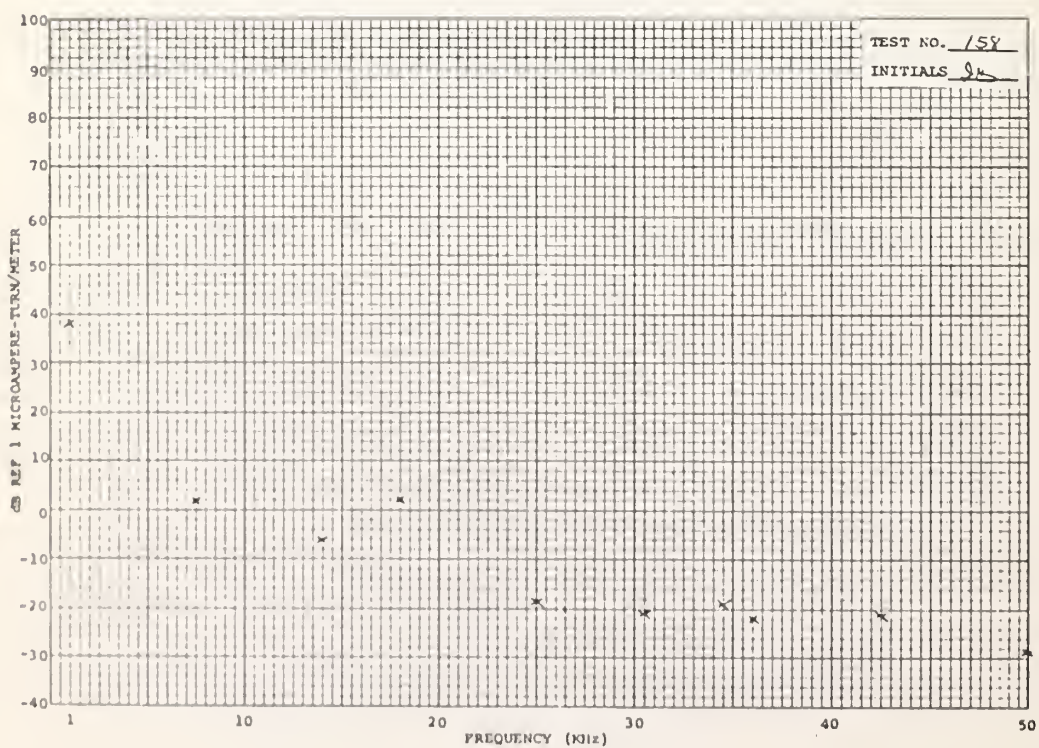
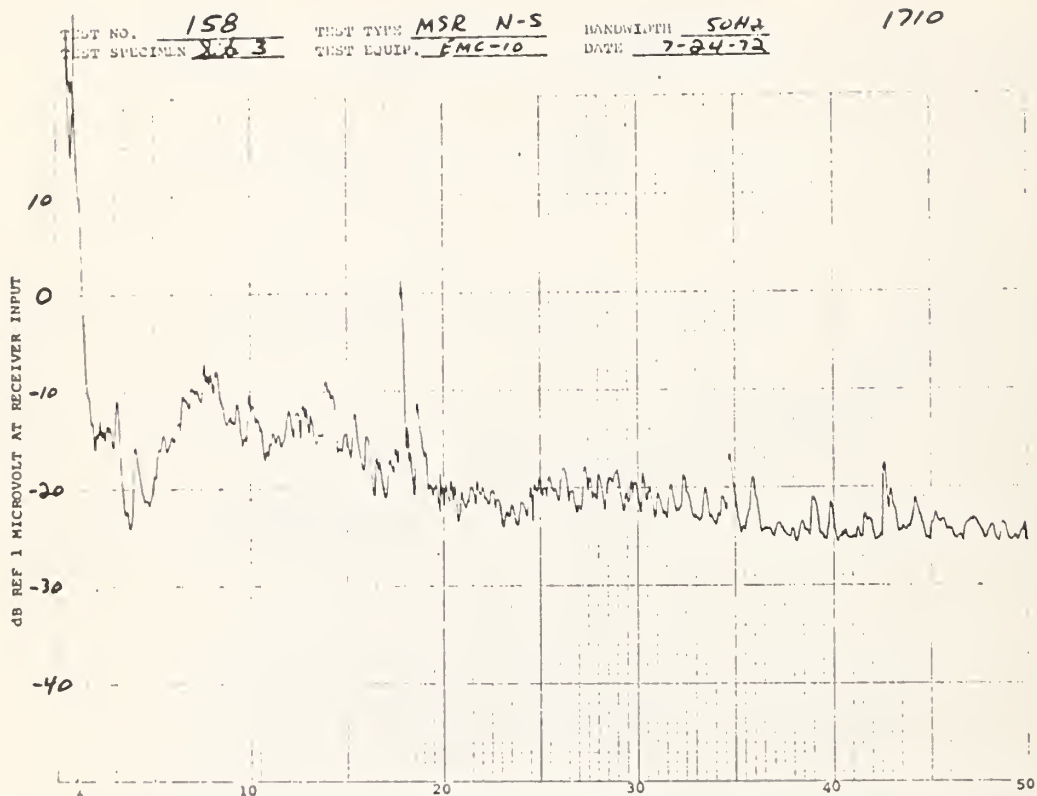
TEST NO. 156  
TEST SPECIMEN 883

TEST TYPE MSR E-W  
TEST EQUIP. ENC-10

BANDWIDTH 50Hz  
DATE 7-24-52

1506



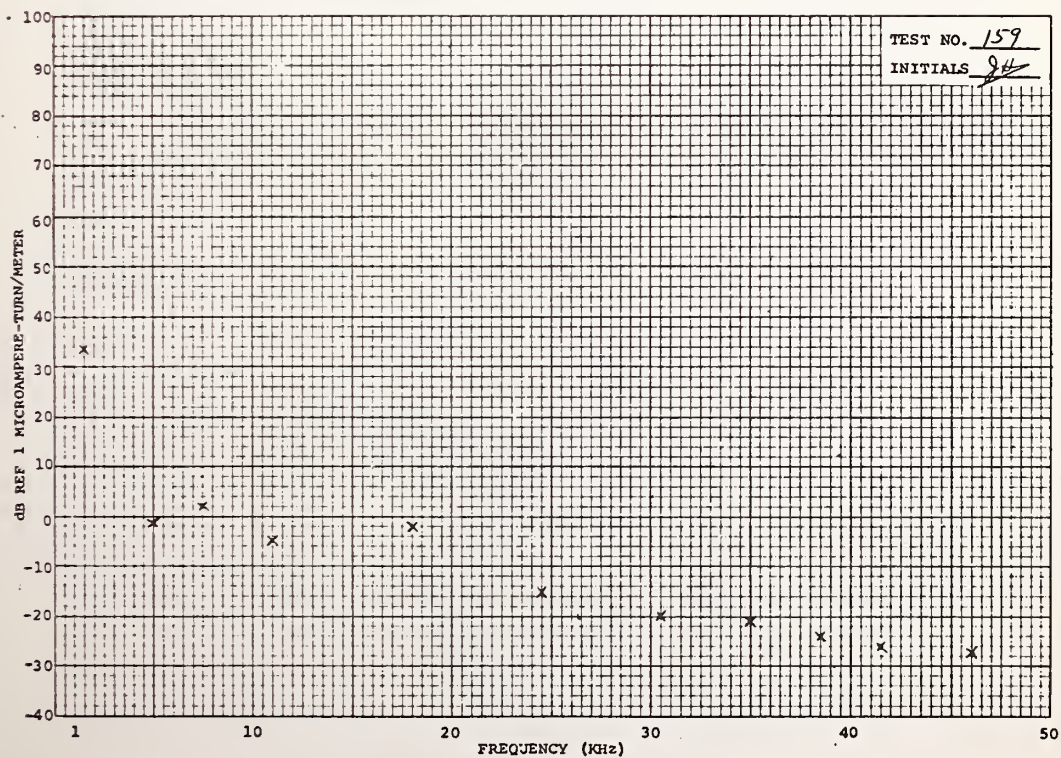
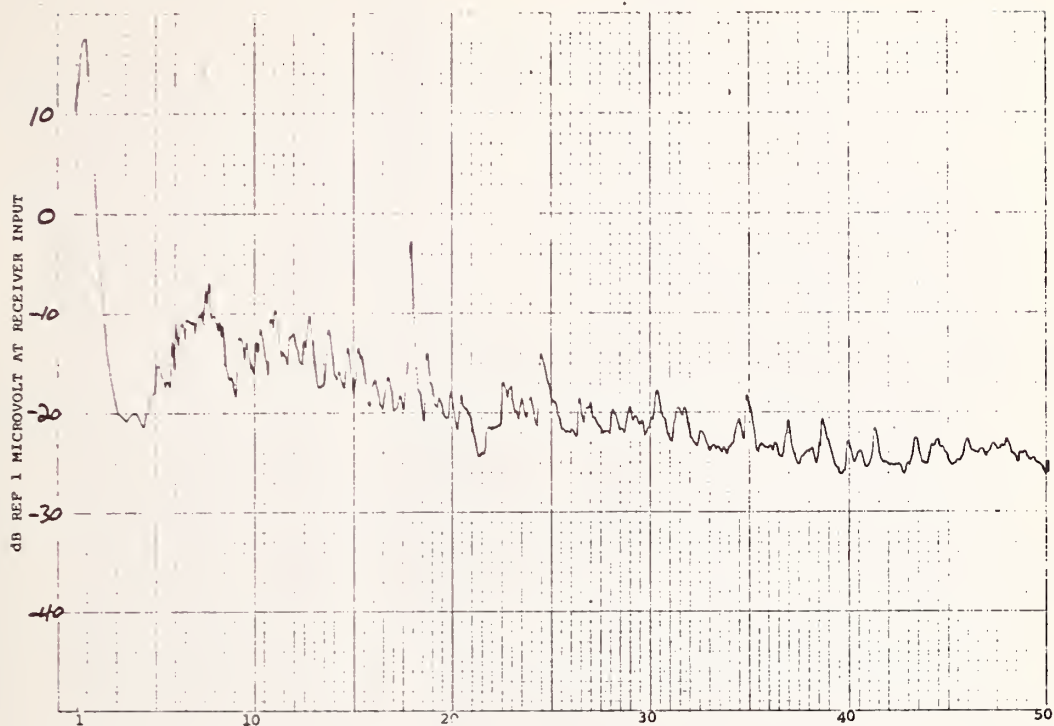


TEST NO. 159  
TEST SPECIMEN 8-63

TEST TYPE MSR N-5  
TEST EQUIP. FHC-10

BANDWIDTH 50 Hz  
DATE 7-24-72

1517

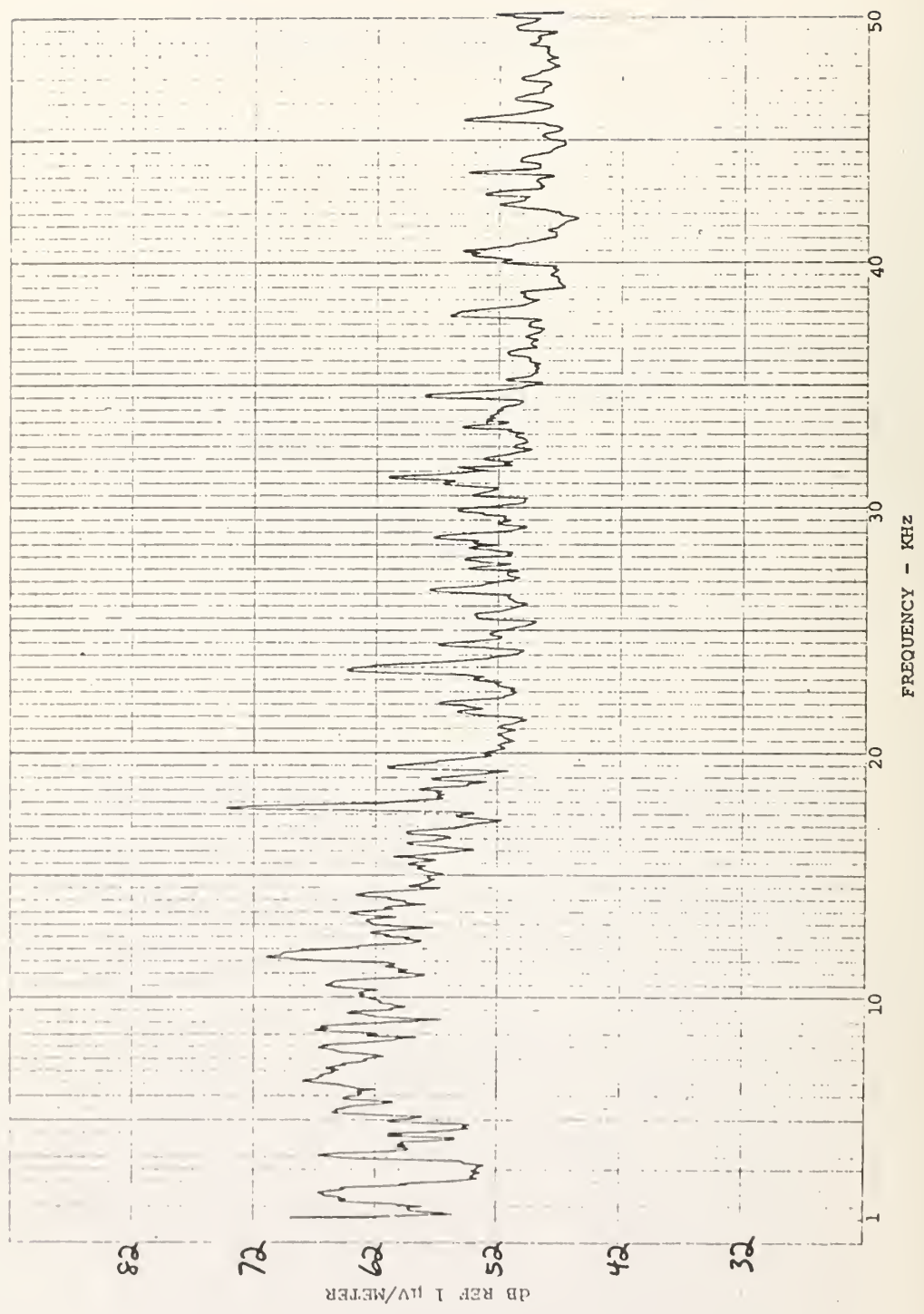


1442

BANDWIDTH 50Hz  
DATE 7-24-72

TEST TYPE ESR E/N  
TEST EQUIP. ENC-10

TEST NO. 153  
TEST SPECIMEN Sub 3

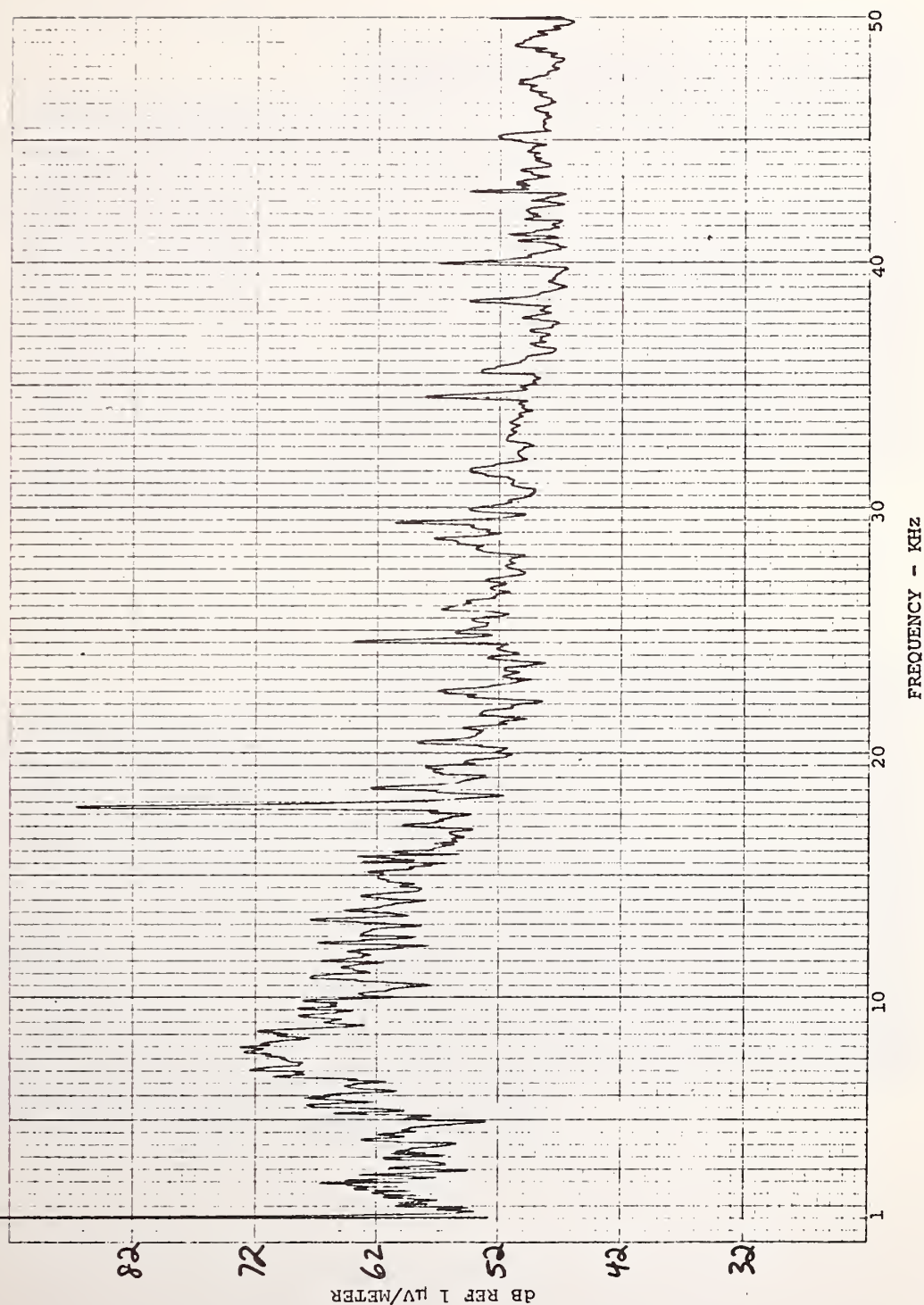


1456

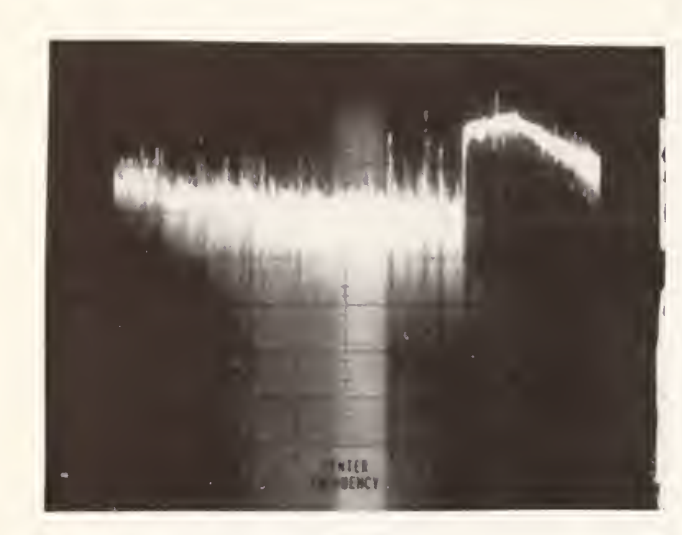
BANDWIDTH 50 Hz  
DATE 7-24-72

TEST TYPE ESR N/S  
TEST EQUIP. EMC-10

TEST NO. 154  
TEST SPECIMEN Sib 3



LOCATION: SITE 3 TYPE TEST ESR DATE 7-24-72



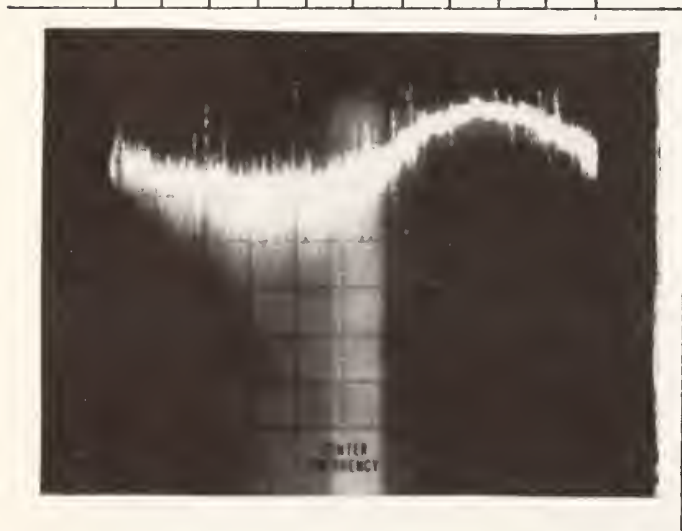
102  
82  
62  
42  
22

TEST 152  
TIME 1432

50 FREQ. 75 KHz 100

FREQ. SCAN: 5 KHz/Div.

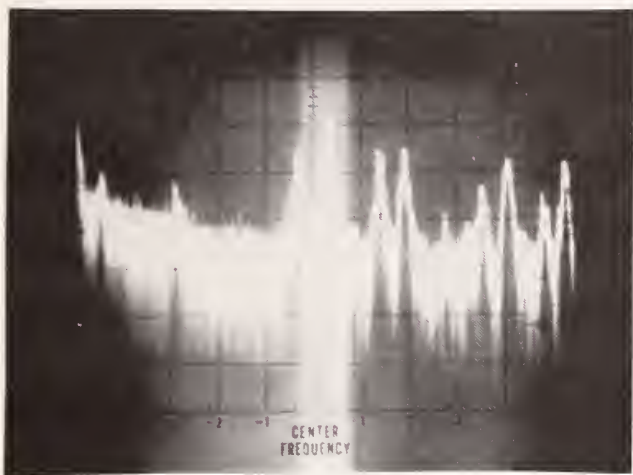
Bandwidth: 10 KHz



102  
82  
62  
42  
22

TEST 152  
TIME 1433

LOCATION: SITE 3 TYPE TEST ESR DATE 7-24-72

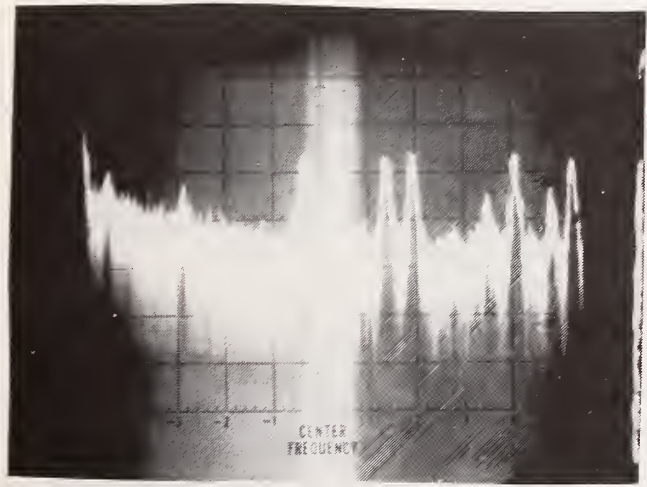


0.1 FREQ. 0.6 MHz 1.1

101  
81  
61  
41  
21

TEST 151  
TIME 1420

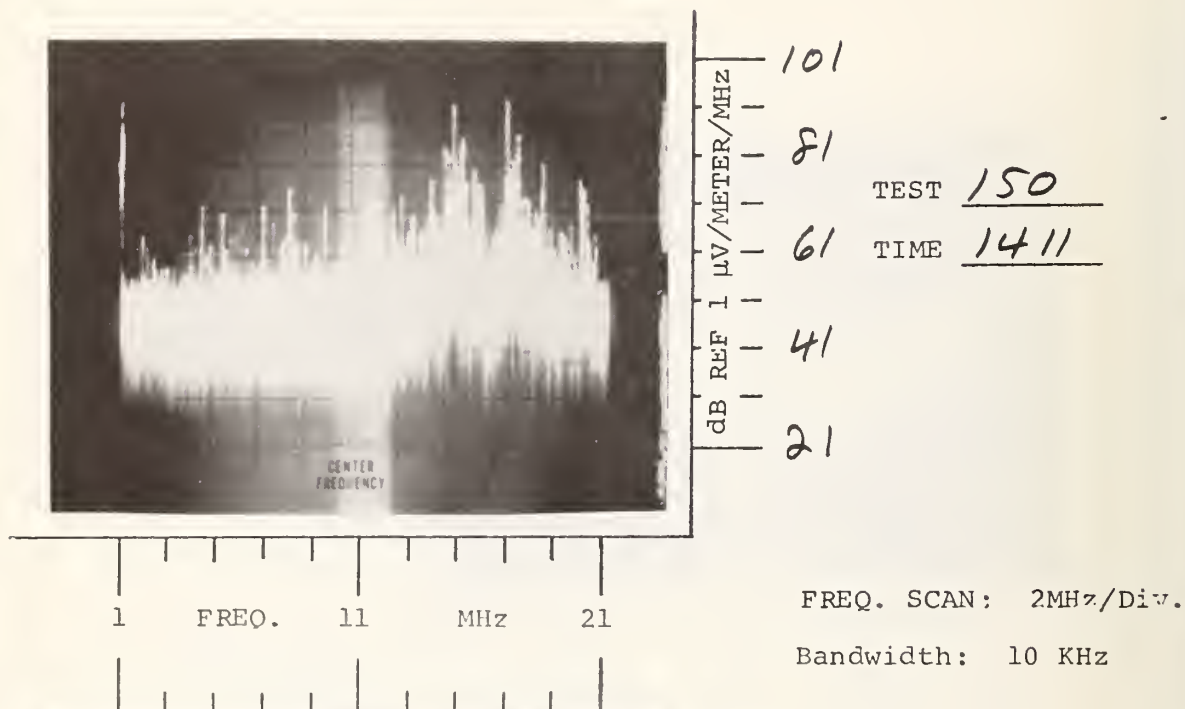
FREQ. SCAN: 0.1 MHz/Div.  
Bandwidth: 10 KHz



101  
81  
61  
41  
21

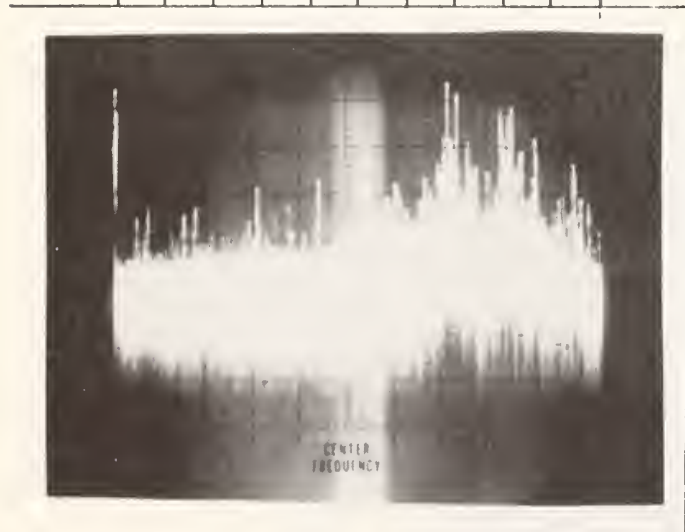
TEST 151  
TIME 1423

LOCATION: SITE 3 TYPE TEST ESR DATE 7-24-72



101  
81  
61  
41  
21

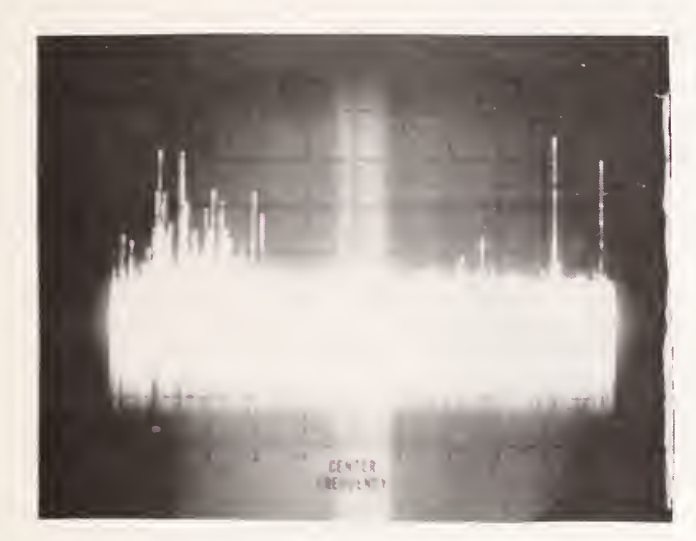
TEST 150  
TIME 1411



101  
81  
61  
41  
21

TEST 150  
TIME 1412

LOCATION: SITE 3 TYPE TEST ESR E/W DATE 7-24-72



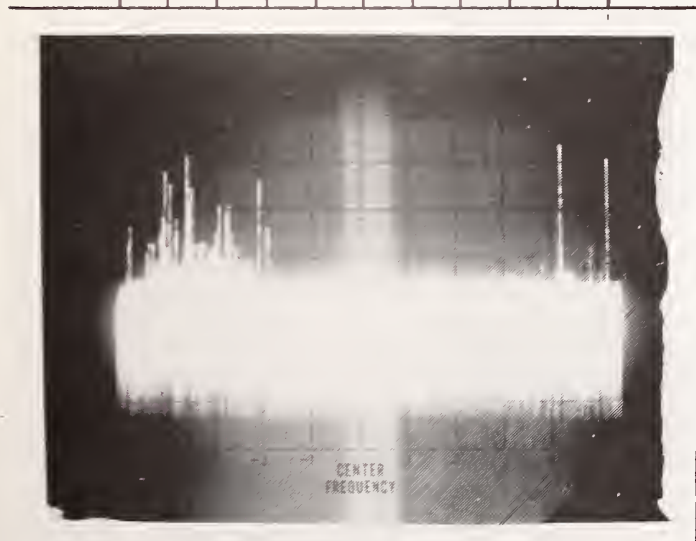
10 FREQ. 35 MHz 60

93  
73  
53  
33  
13

TEST 149  
TIME 1406

FREQ. SCAN: 5MHz/Div.

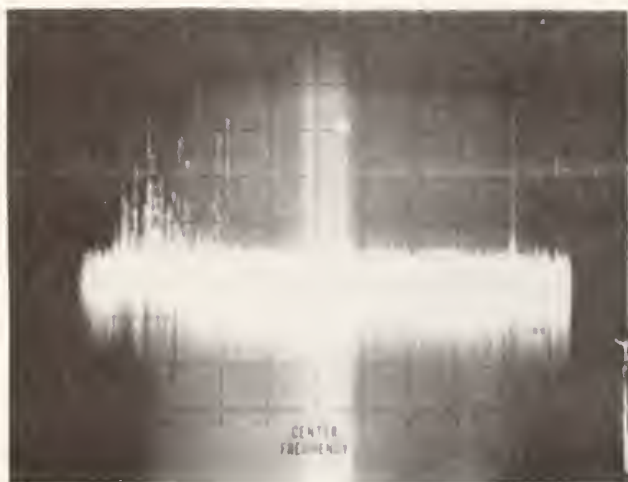
Bandwidth: 10 KHz



93  
73  
53  
33  
13

TEST 149  
TIME 1408

LOCATION: SITE 3 TYPE TEST ESR N/S DATE 7-24-72



93  
73  
53  
33  
13

TEST 148  
TIME 1404

FREQ. SCAN: 5MHz/Div.

Bandwidth: 10 KHz



93  
73  
53  
33  
13

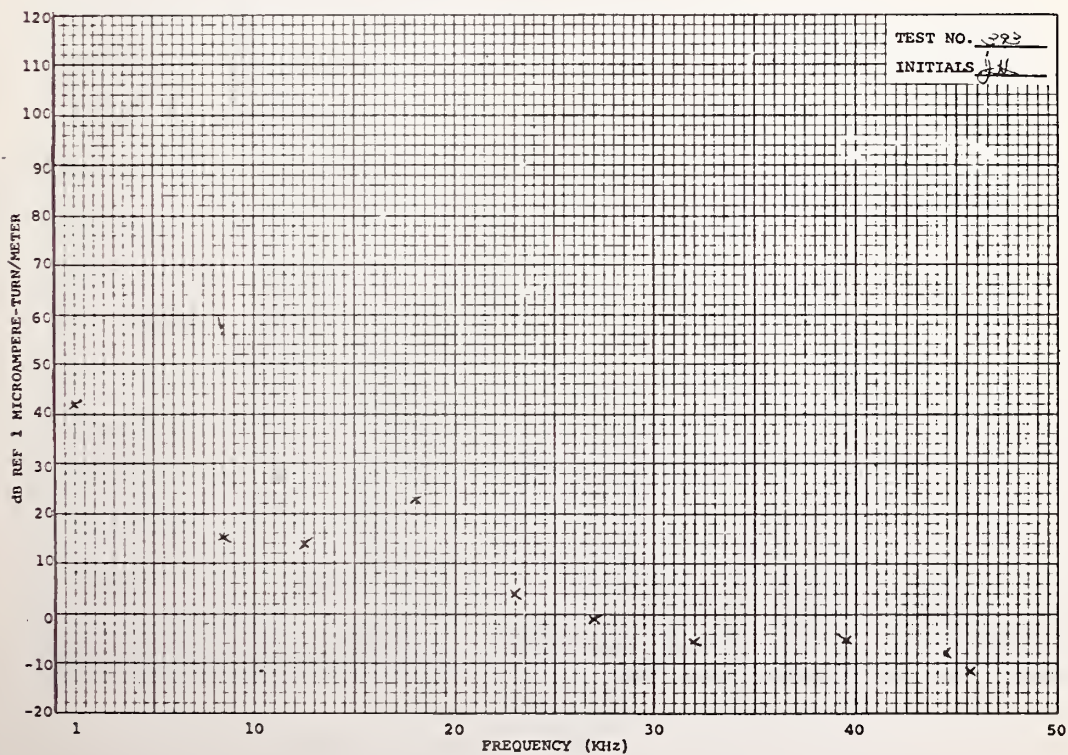
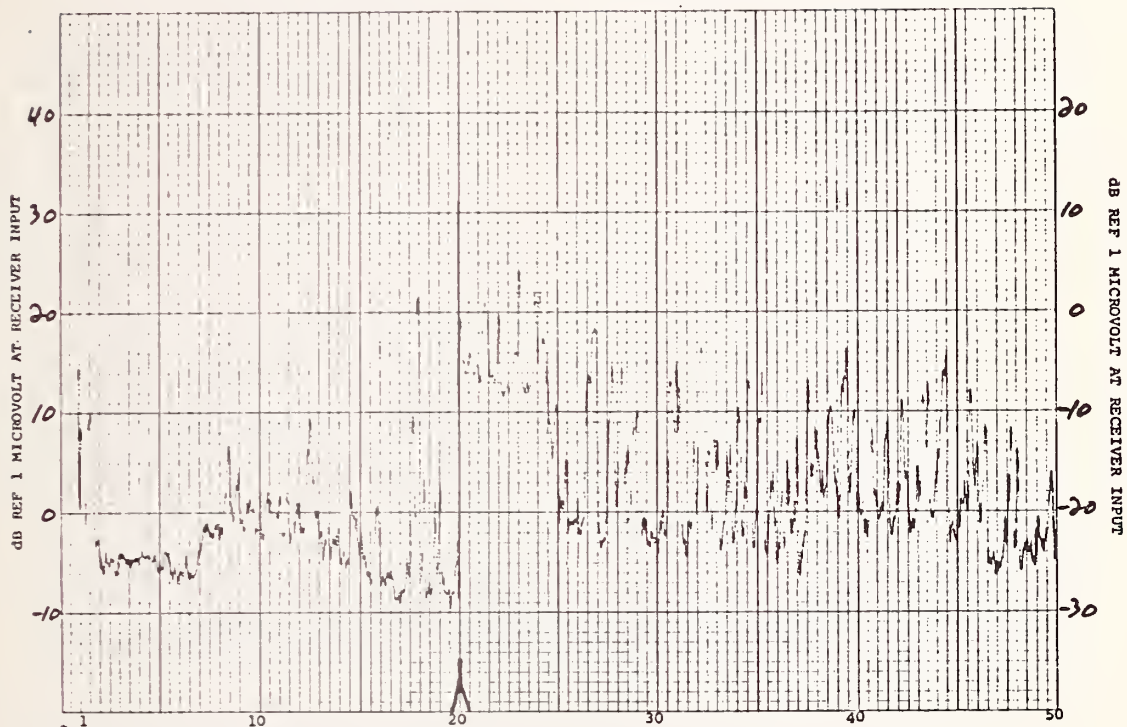
TEST 148  
TIME 1405

TEST NO. 393  
TEST SPECIMEN 264

TEST TYPE MSA F/L  
TEST EQUIP. ENC-10

BANDWIDTH 50 Hz  
DATE 8-1-72

1415  
ESJ



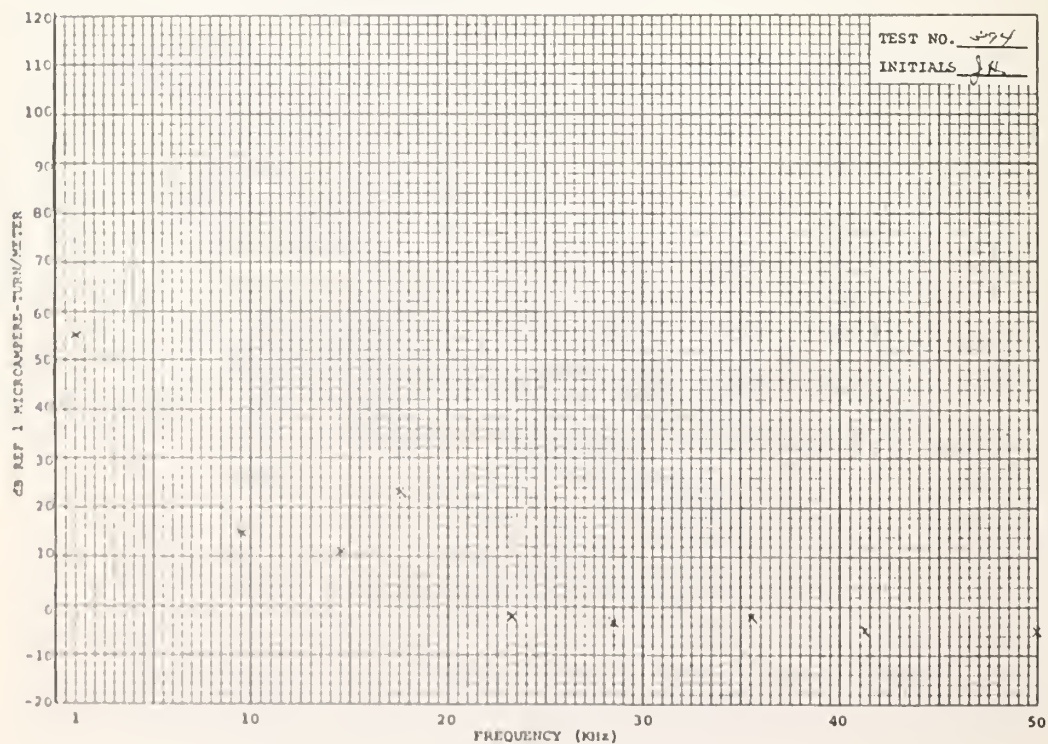
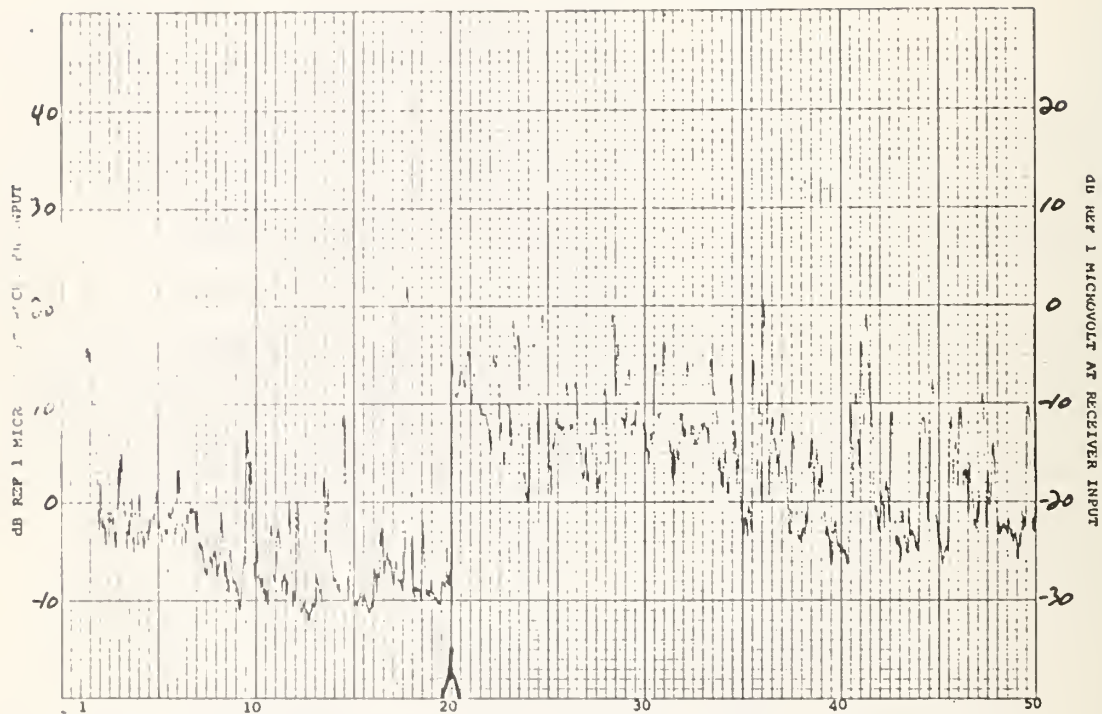
TEST NO. 393  
INITIALS ESJ

TEST NO. 394  
TEST SPECIMEN 264

TEST TYPE MSP F/H  
TEST EQUIP. FM-10

BANDWIDTH 50 Hz  
DATE 8-1-72

1418  
82

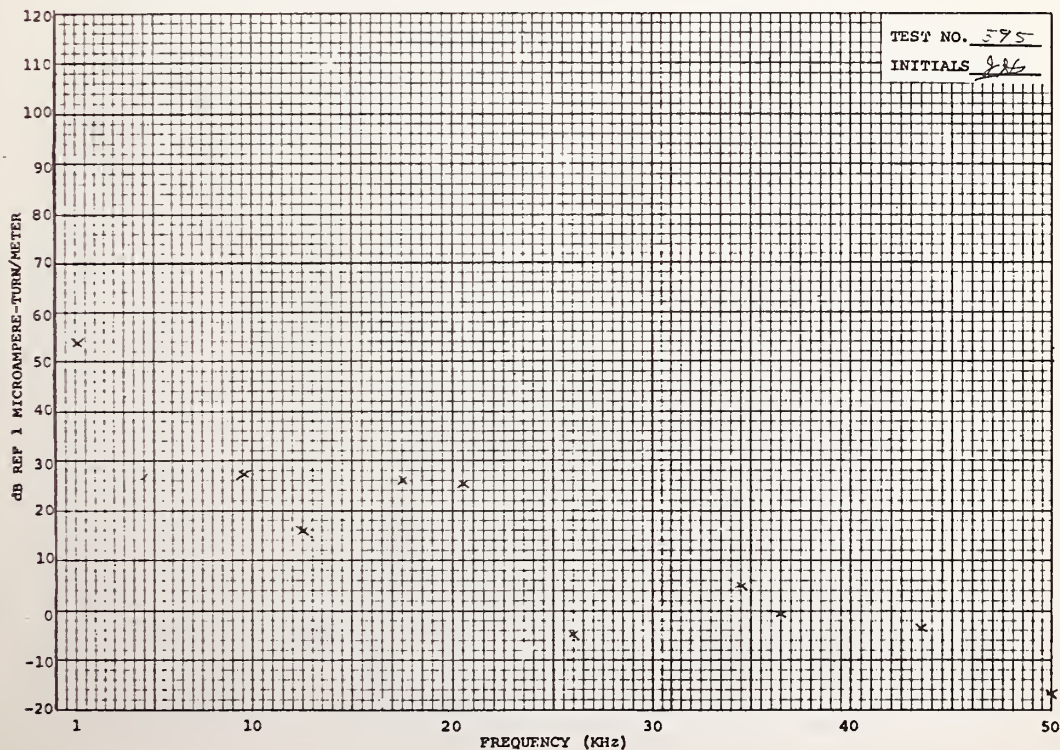
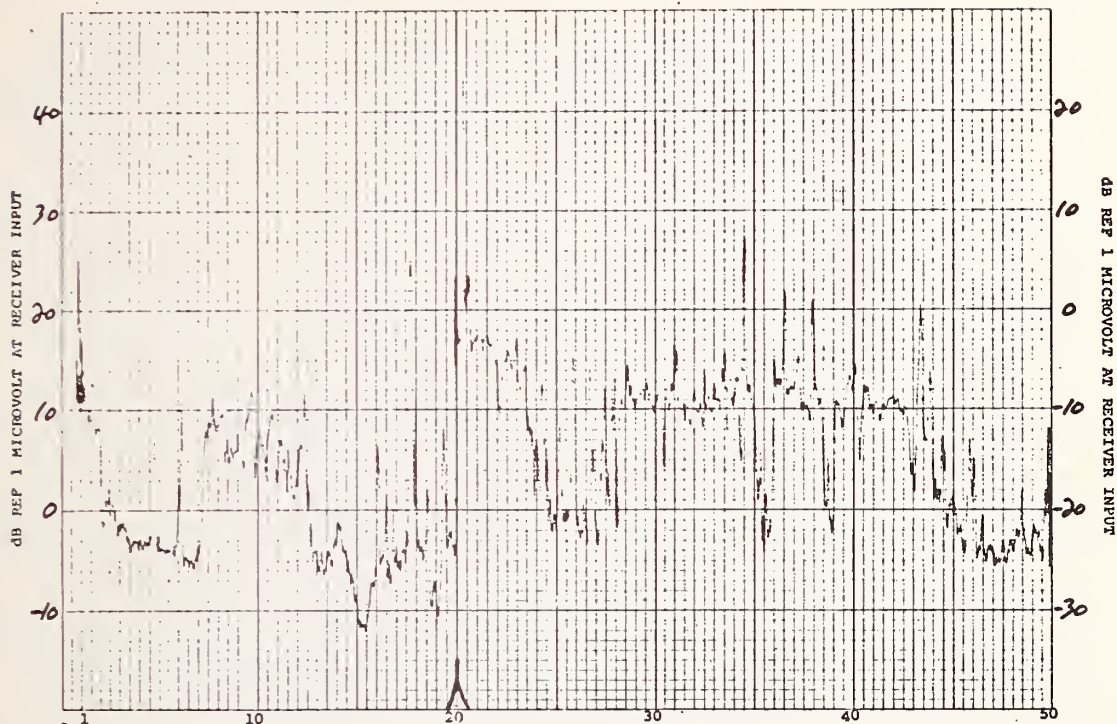


TEST NO. 395  
TEST SPECIMEN 204

TEST TYPE MSR N/S  
TEST EQUIP. EM-10

BANDWIDTH 50 Hz  
DATE 8-1-72

1421  
821

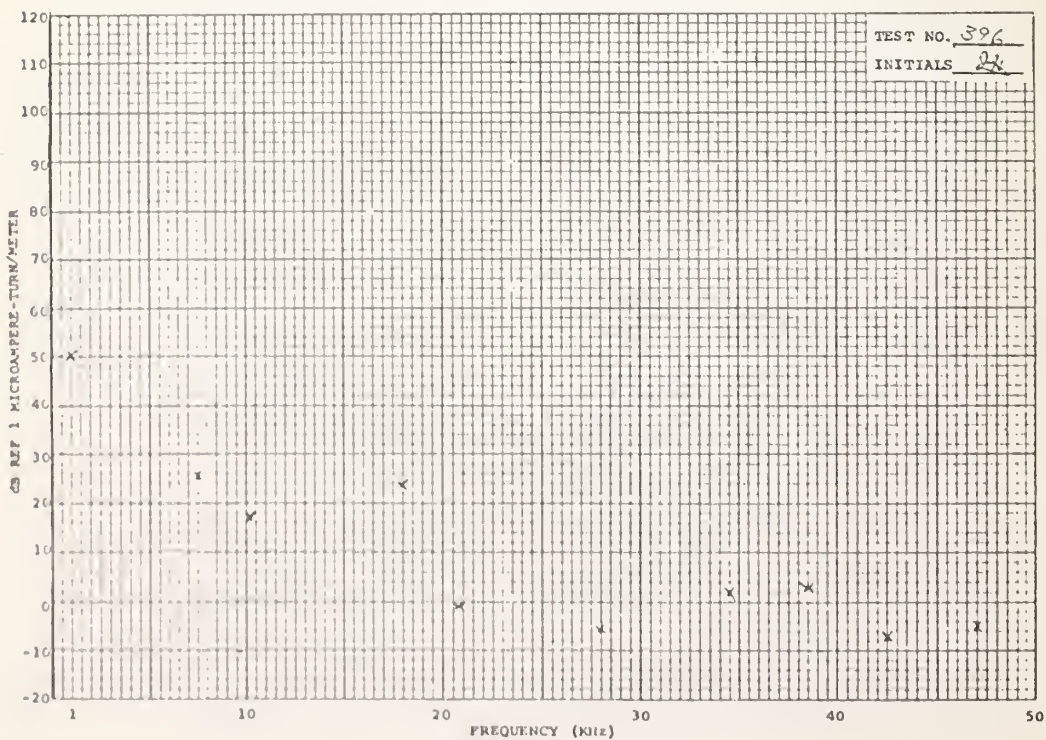
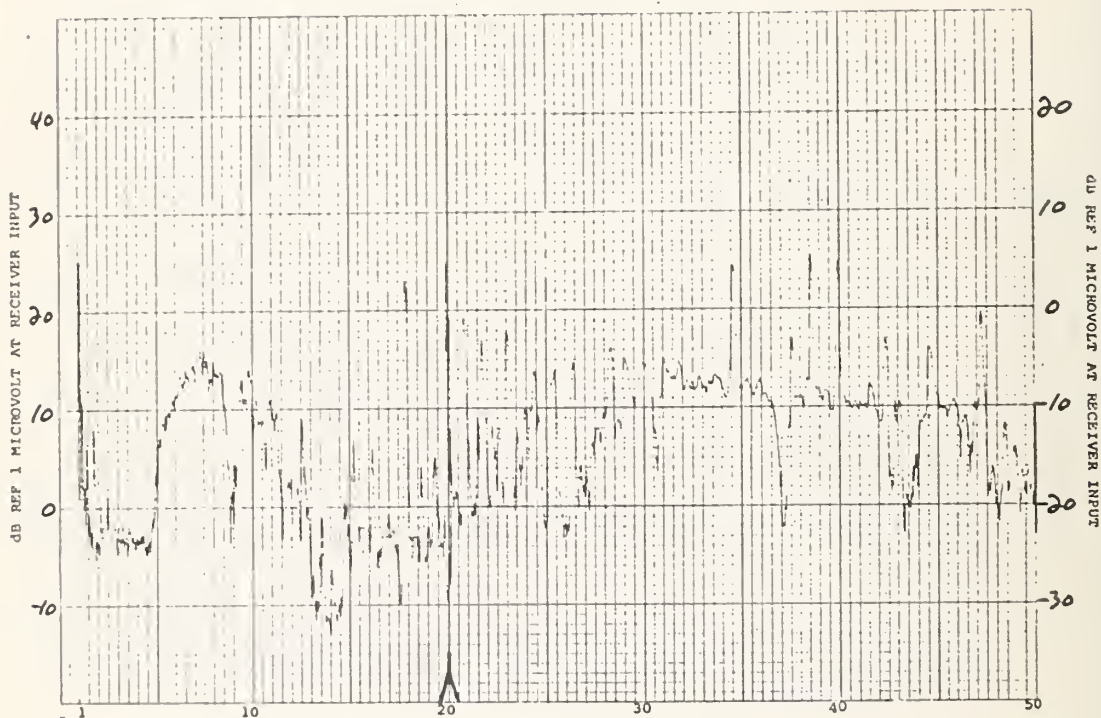


TEST NO. 396  
TEST SPECIMEN S. 6. 4

TEST TYPE MSR N/S  
TEST EQUIP. CNC-10

BANDWIDTH 50 Hz  
DATE 8-1-72

1424  
SA

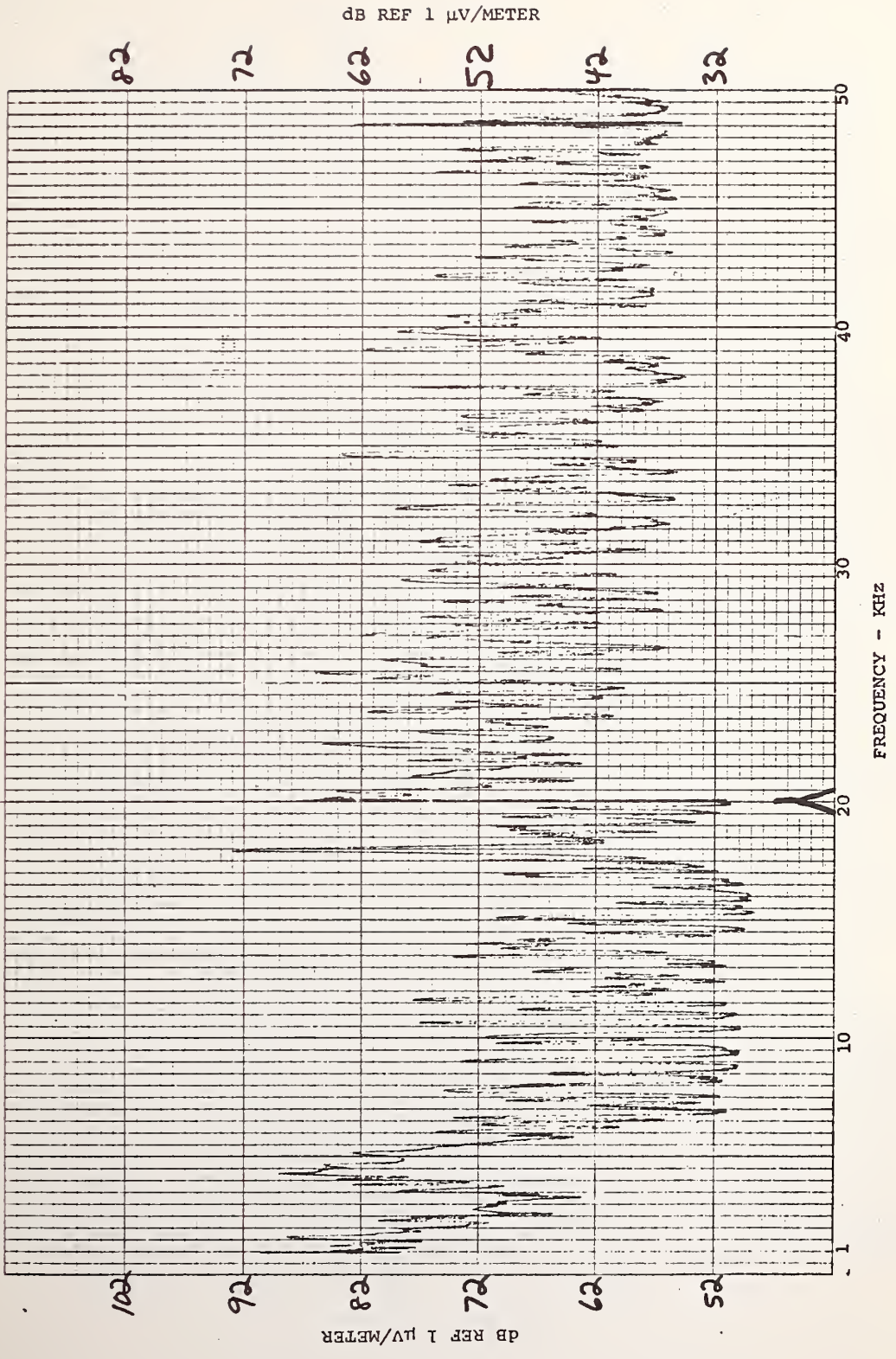


1434  
EG

BANDWIDTH 50 Hz  
DATE 8-1-78

TEST TYPE ESR E/W  
TEST EQUIP. EMC-10

TEST NO. 399  
TEST SPECIMEN 8-4

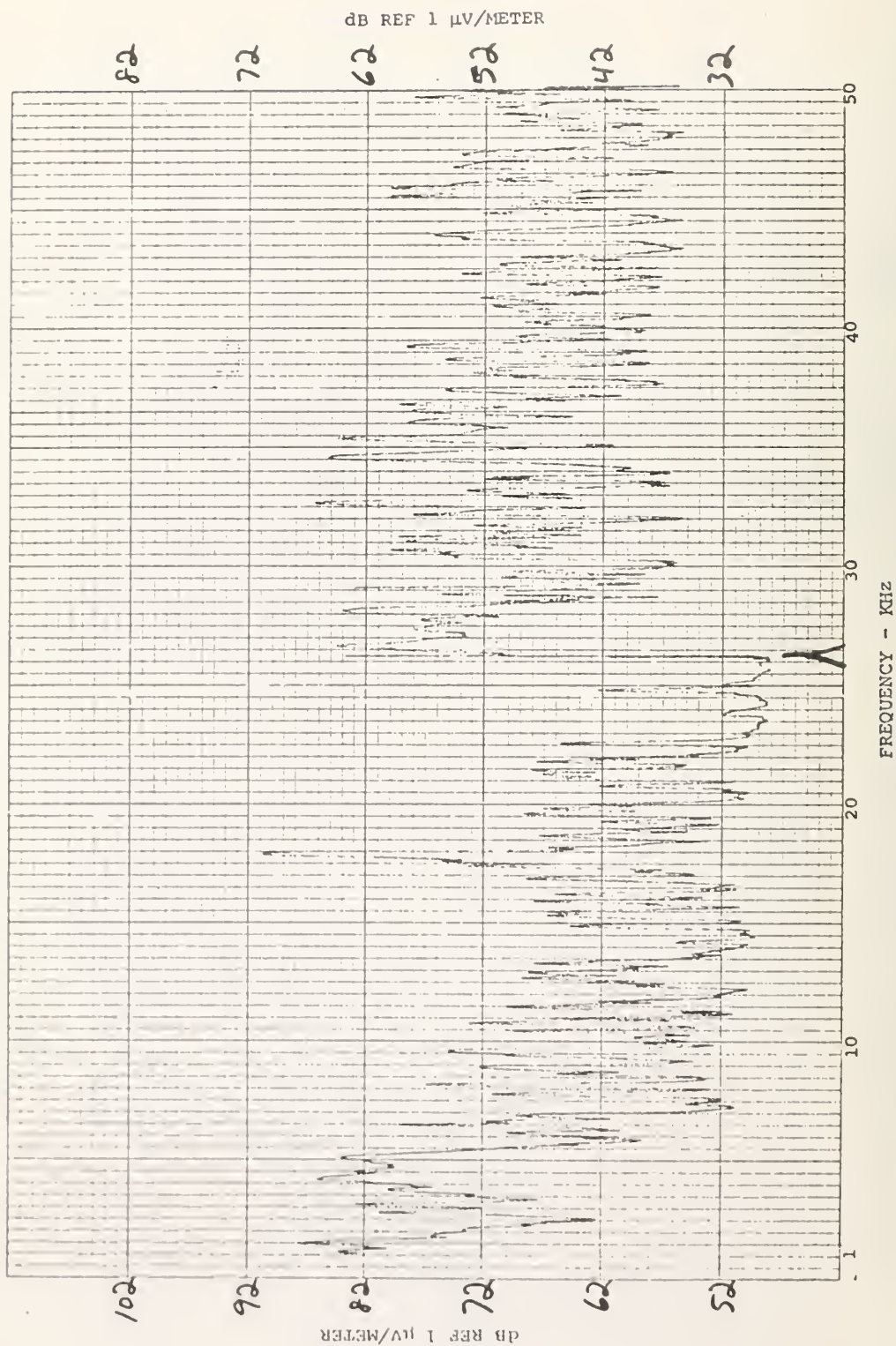


438  
55g

BANDWIDTH 50 Hz  
DATE 8-1-73

TEST TYPE ESR E/W  
TEST EQUIP. EMC-10

TEST NO. 400  
TEST SPECIMEN Sib 4

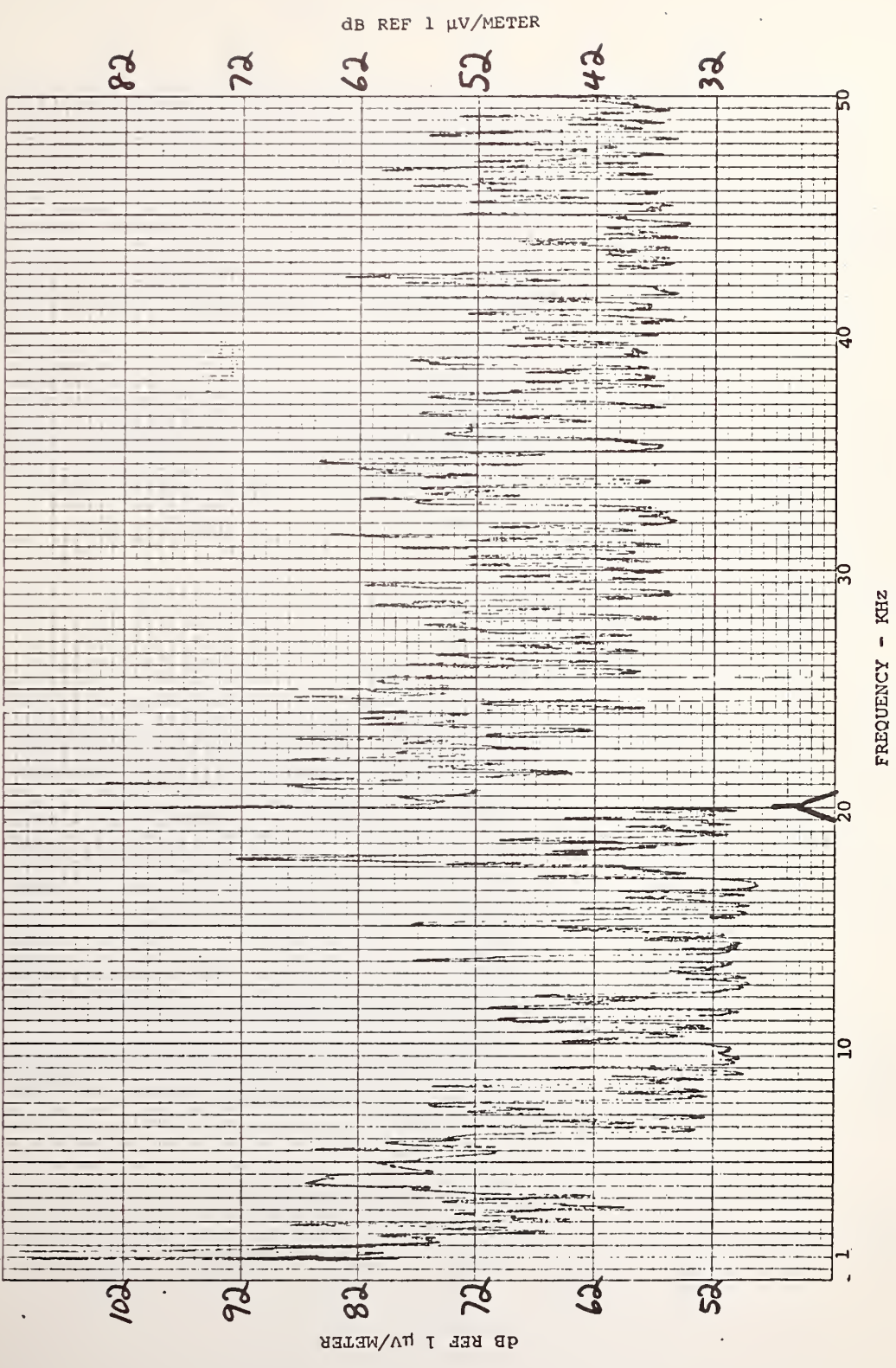


1428  
SE

BANDWIDTH 50 Hz  
DATE 8-1-78

TEST TYPE ESR N/S  
TEST EQUIP. EMC-10

TEST NO. 397  
TEST SPECIMEN 2.64

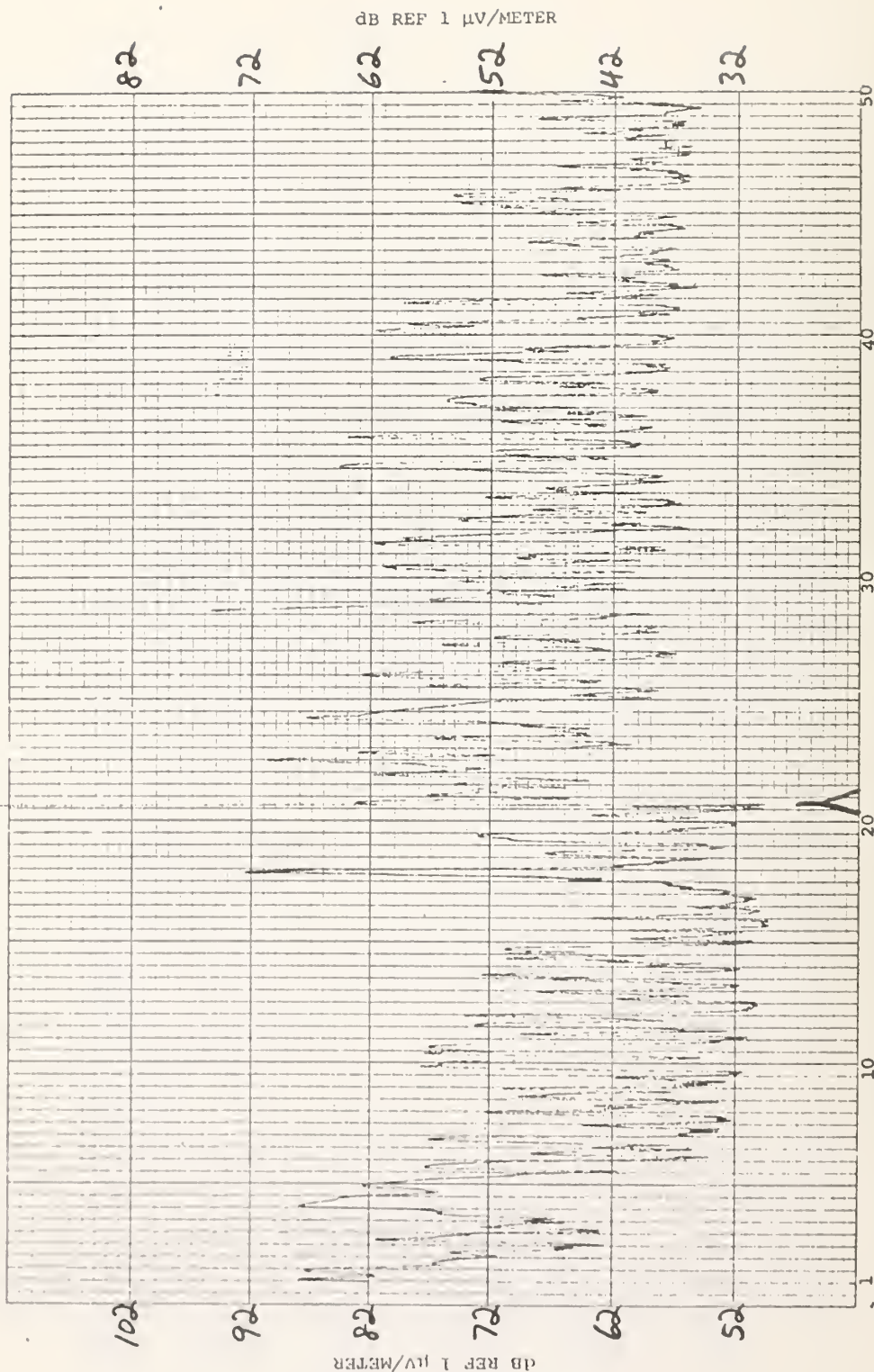


1431  
SEA

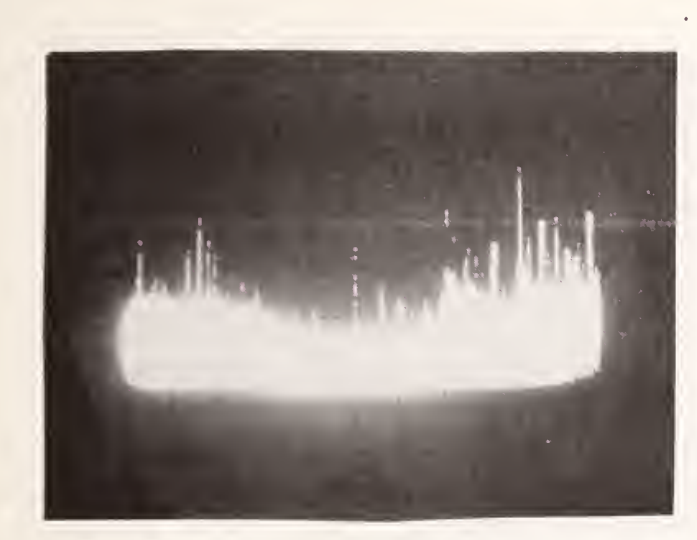
BANDWIDTH 50 Hz  
DATE 8-1-72

TEST TYPE ESR N/S  
TEST EQUIP. EMC-10

TEST NO. 398  
TEST SPECIMEN Sub 4



LOCATION: SITE 4 TYPE TEST ESR DATE 8-1-72



50 FREQ. 75 KHz 100

153  
133  
113  
93  
73

TEST 401  
TIME 1444

FREQ. SCAN: 5 KHz/Div.

Bandwidth: 10 KHz



153  
133  
113  
93  
73

TEST 401  
TIME 1444.5

LOCATION: SITE 4 TYPE TEST ESR DATE 8-1-72



153  
133  
113  
93  
73  
dB REF 1  $\mu$ V/METER/MHz

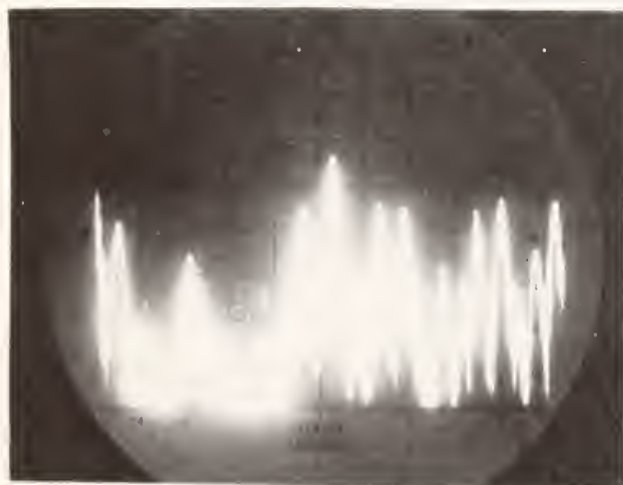
TEST 402

TIME 1447

0.1 FREQ. 0.6 MHz 1.1

FREQ. SCAN: 0.1 MHz/Div.

Bandwidth: 10 kHz

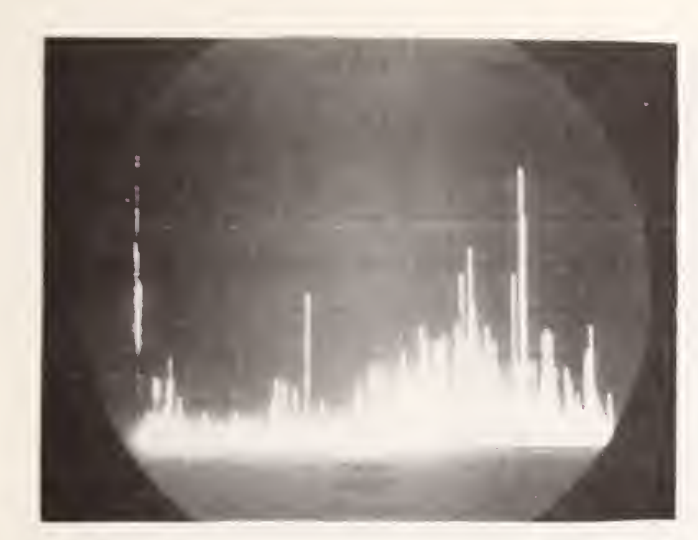


153  
133  
113  
93  
73  
dB REF 1  $\mu$ V/METER/MHz

TEST 402

TIME 1447.5

LOCATION: SITE 4 TYPE TEST ESR DATE 8-1-72



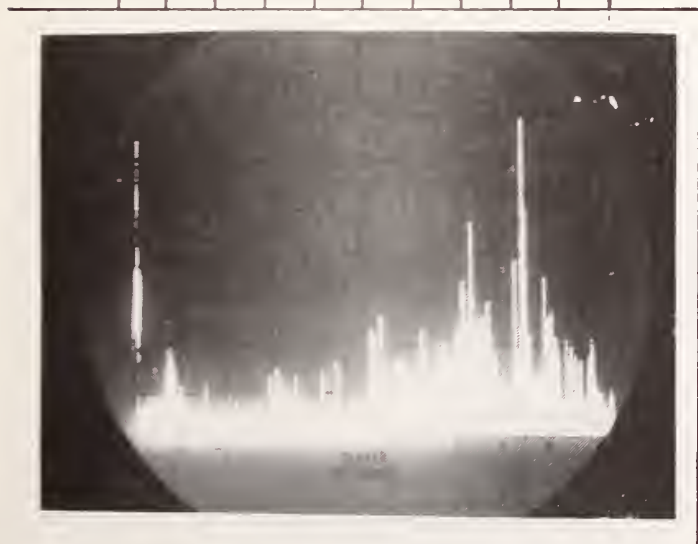
153  
133  
113  
93  
73  
dB REF 1  $\mu$ V/METER/MHz

TEST 403  
TIME 1450

1 FREQ. 11 MHz 21

FREQ. SCAN: 2MHz/Div.

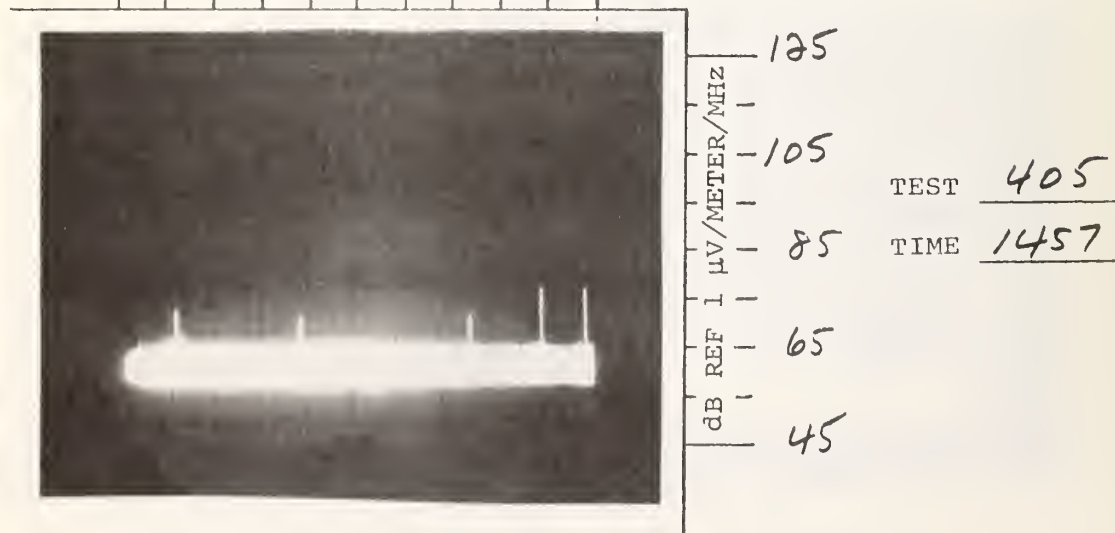
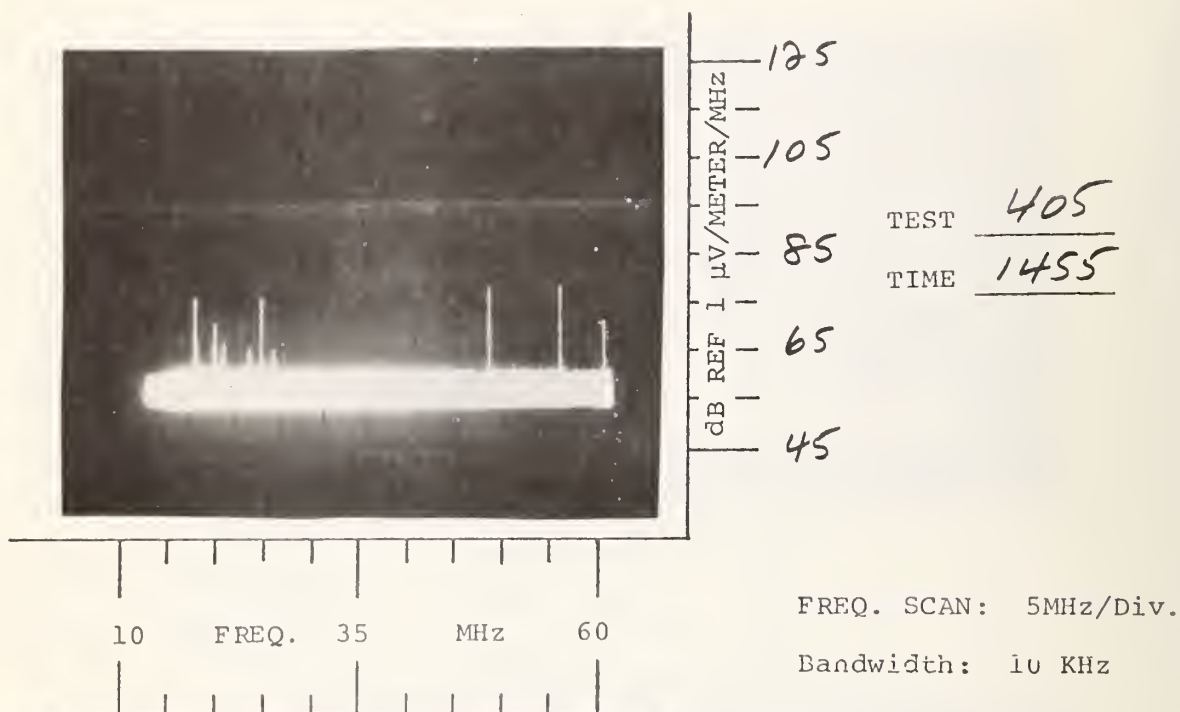
Bandwidth: 10 KHz



153  
133  
113  
93  
73  
dB REF 1  $\mu$ V/METER/MHz

TEST 403  
TIME 1451

LOCATION: SITE 4 TYPE TEST ESR E/N DATE 8-1-72



LOCATION: SITE 4 TYPE TEST ESR N/S DATE 8-1-72



125  
105  
85  
65  
45  
dB REF 1  $\mu$ V/METER/MHz

TEST 404  
TIME 1454

10 FREQ. 35 MHz 60

FREQ. SCAN: 5MHz/Div.

Bandwidth: 10 KHz



125  
105  
85  
65  
45  
dB REF 1  $\mu$ V/METER/MHz

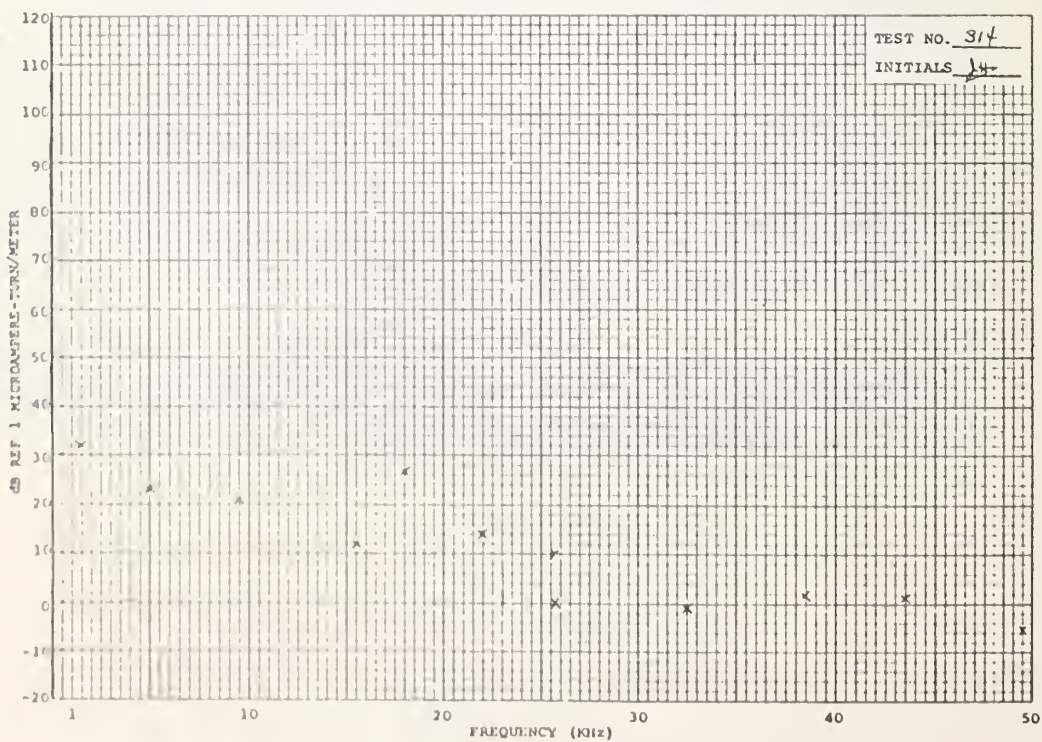
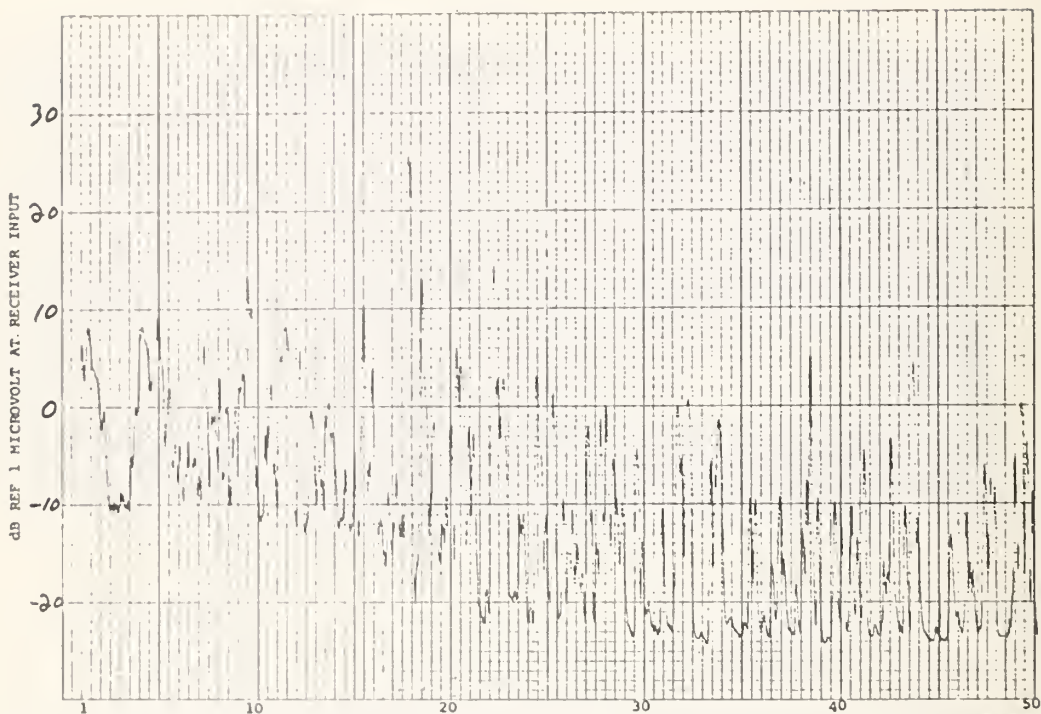
TEST 404  
TIME 1454.5

TEST NO. 314  
TEST SPECIMEN S6U

TEST TYPE MSR E/U  
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz  
DATE 7-27-72

1423  
SA

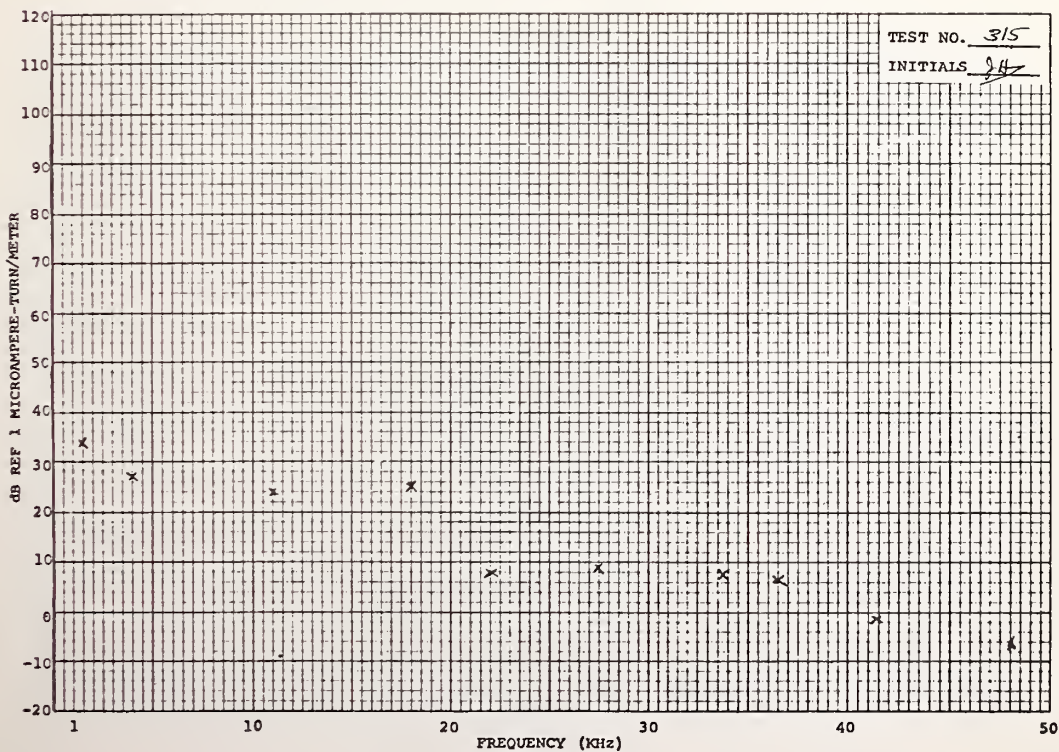
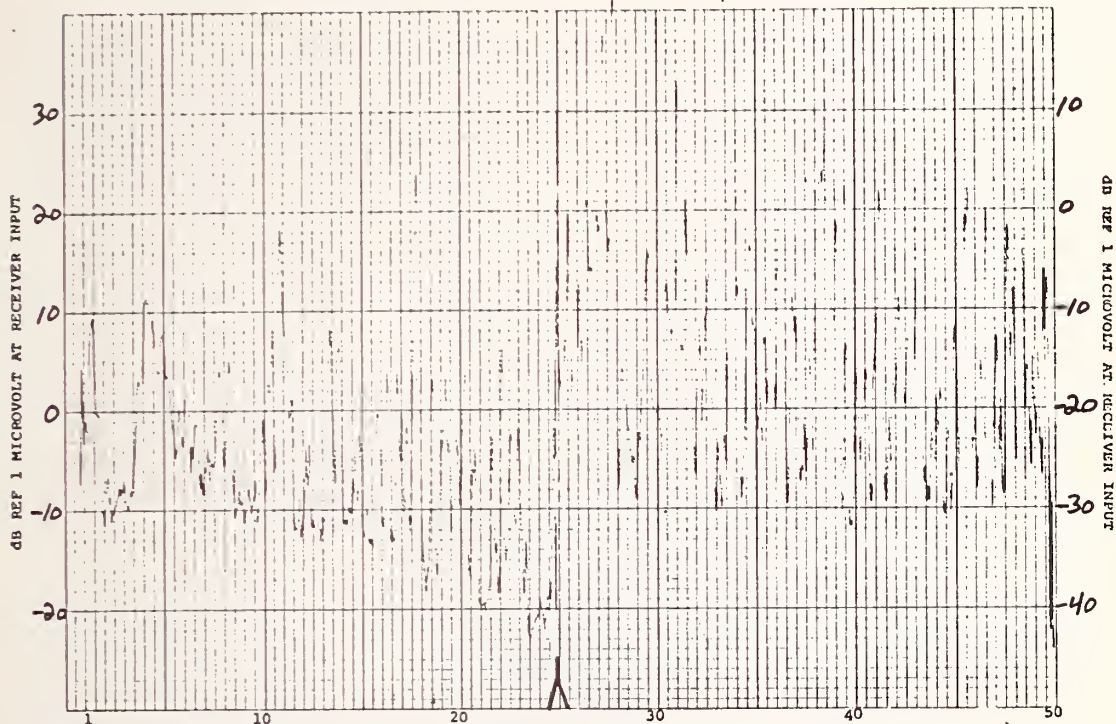


TEST NO. 315  
TEST SPECIMEN 26 U

TEST TYPE MSR E/W  
TEST EQUIP. FMC-10

BANDWIDTH 50 MHz  
DATE 7-28-72

1437  
ED

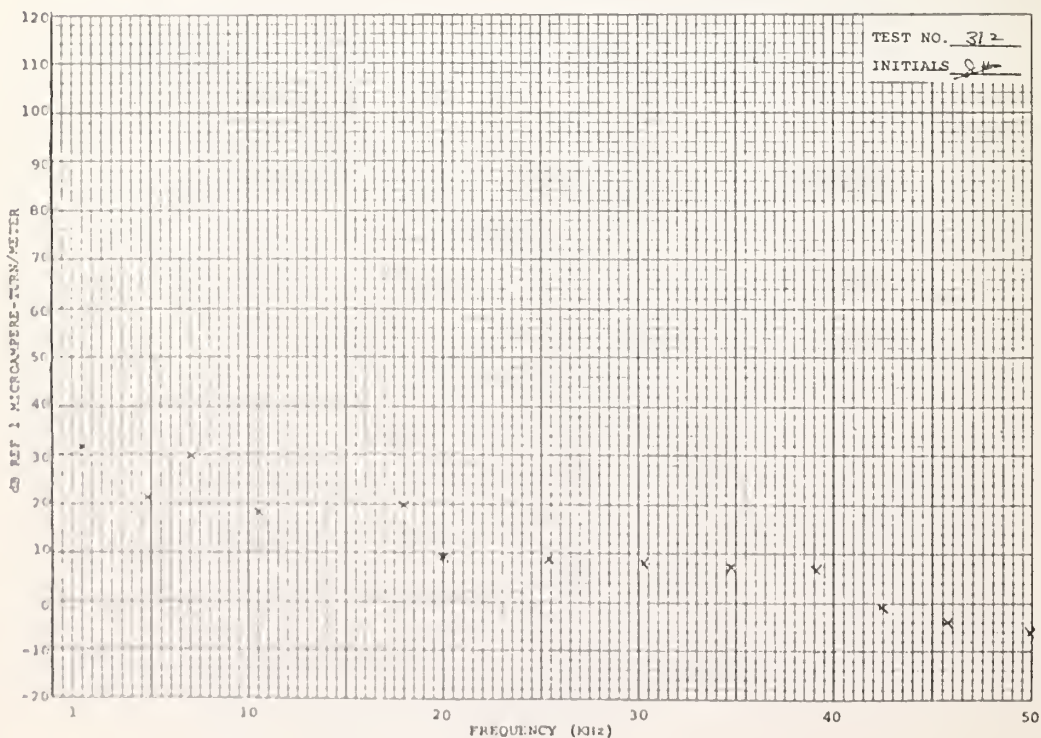
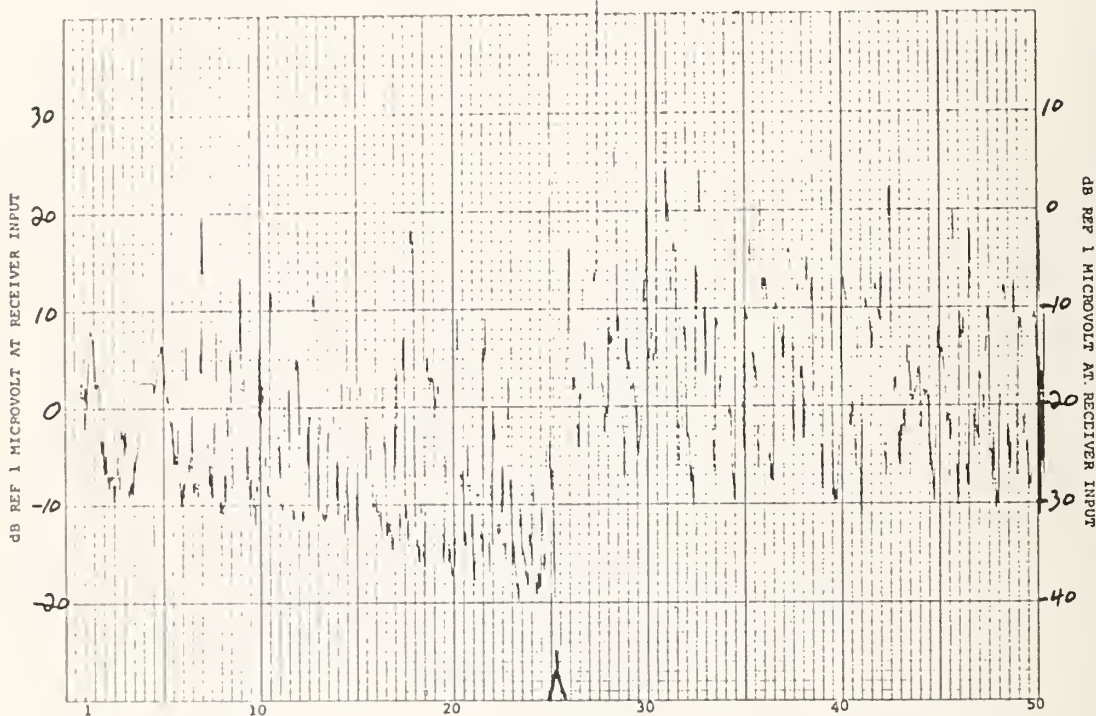


TEST NO. 312  
TEST SPECIMEN S-611

TEST TYPE MSI' N/S  
TEST EQUIP. 14010

BANDWIDTH 50Hz  
DATE 7-28-72

1418  
SSJ

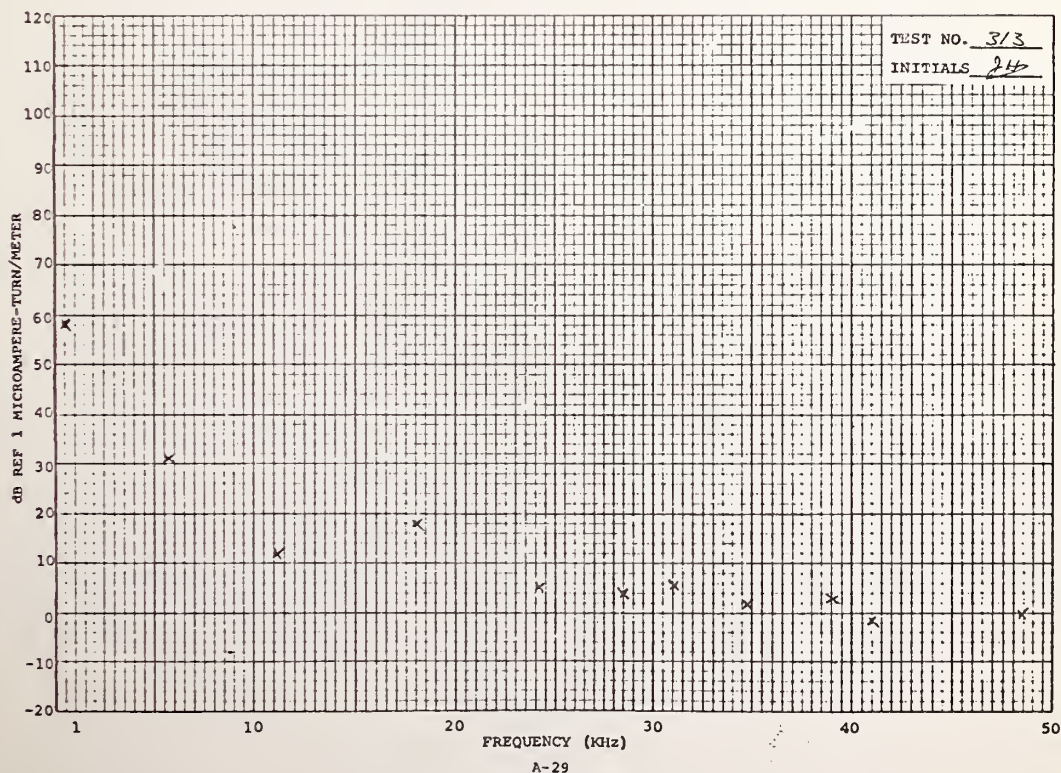
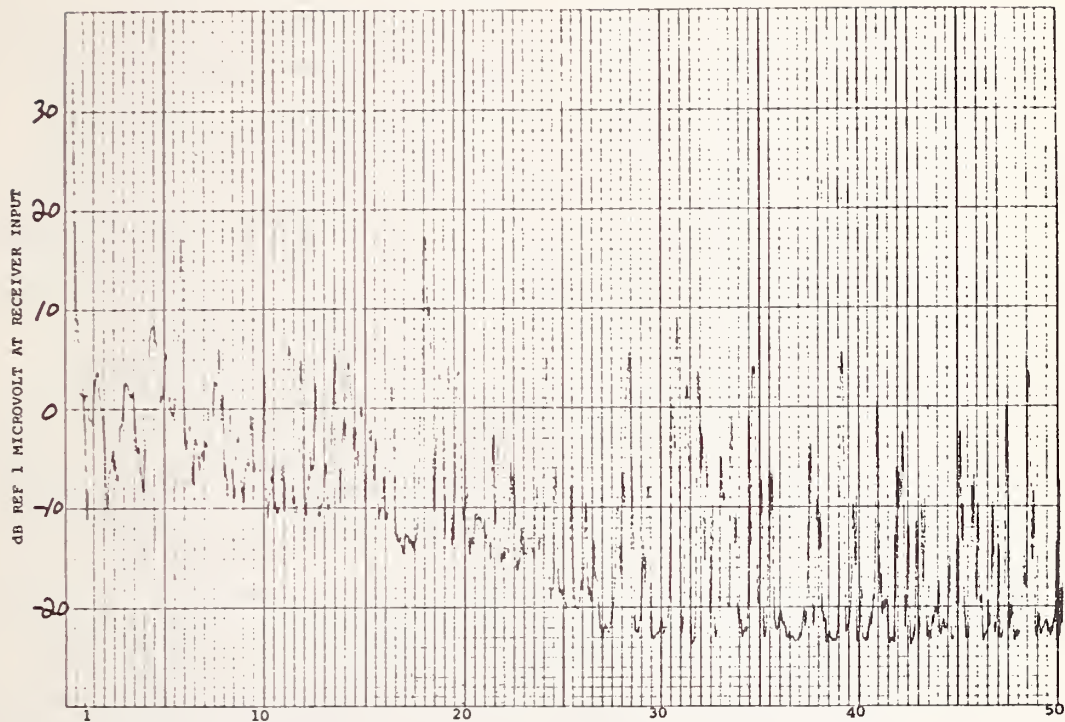


TEST NO. 313  
TEST SPECIMEN 8-6-11

TEST TYPE MSR N/S  
TEST EQUIP. EMC-1C

BANDWIDTH 50 Hz  
DATE 7-22-72

1421  
SG

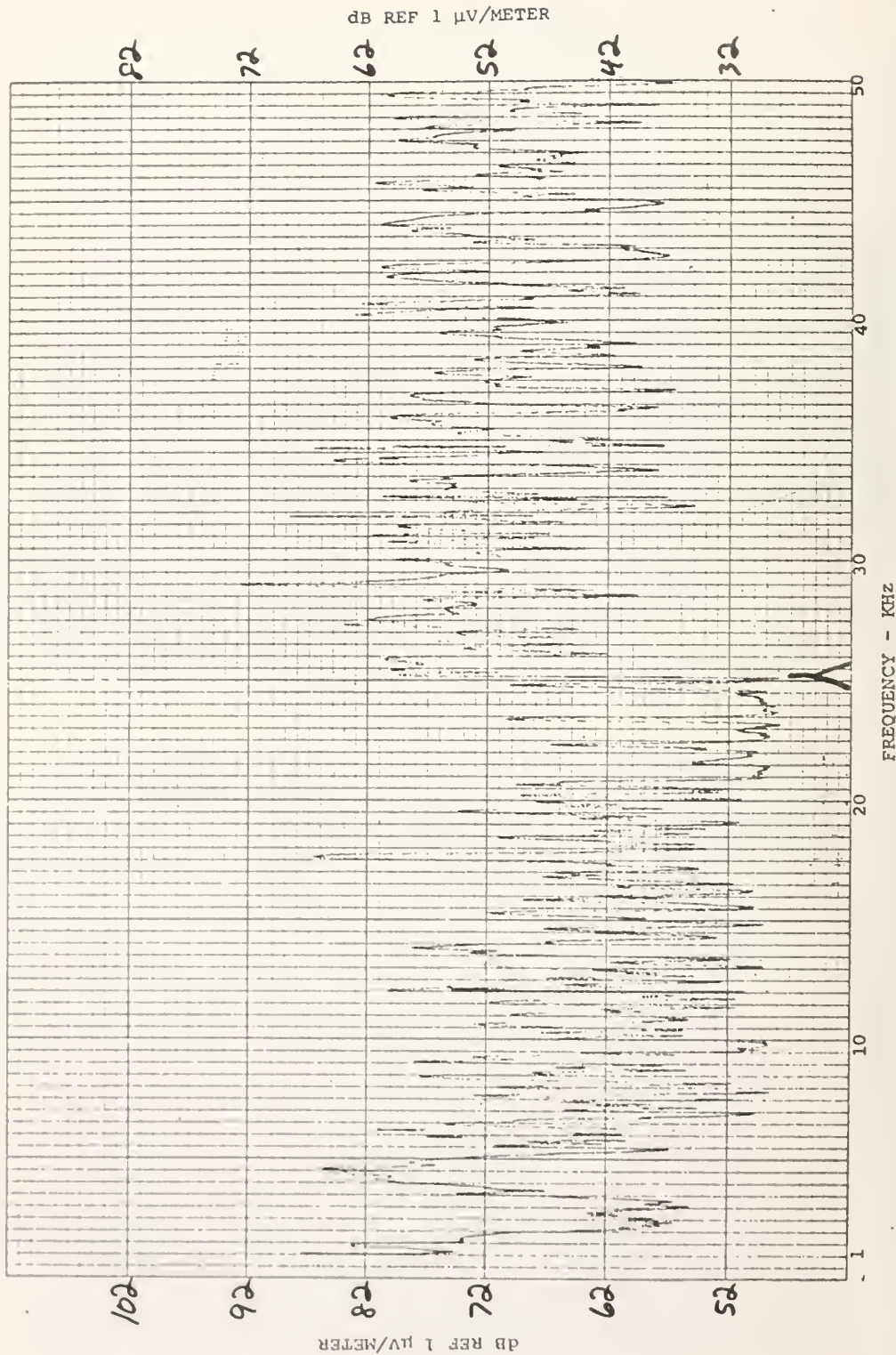


TEST NO. 316  
TEST SPECIMEN 211

TEST TYPE FSR E/M  
TEST EQUIP. ENC-16

BANDWIDTH 50 Hz  
DATE 7-21-72

1434  
880

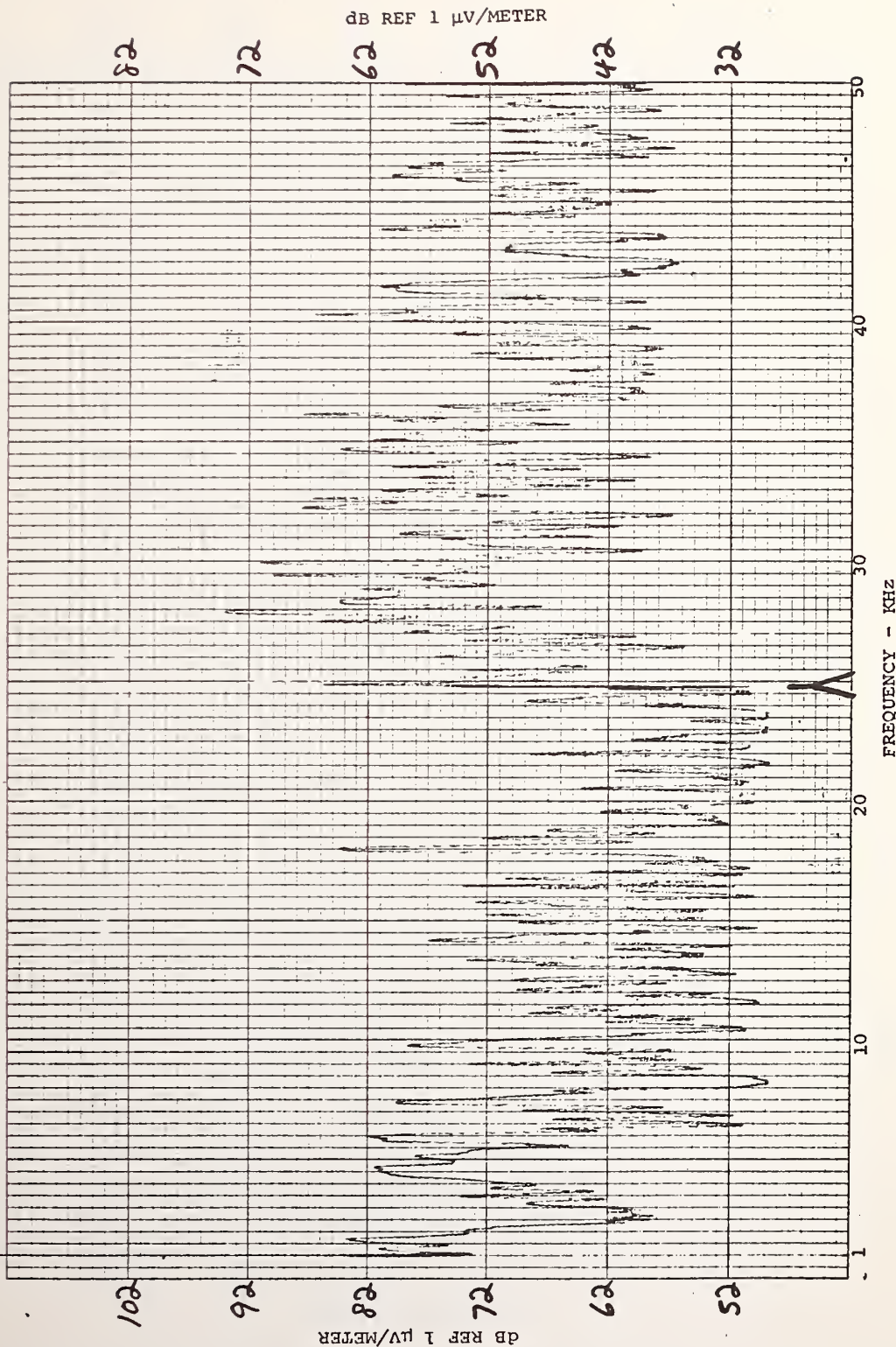


1437  
EEA

BANDWIDTH 50 Hz  
DATE 7-28-72

TEST TYPE ESR E/W  
TEST EQUIP. EMC-10

TEST NO. 317  
TEST SPECIMEN 2A II

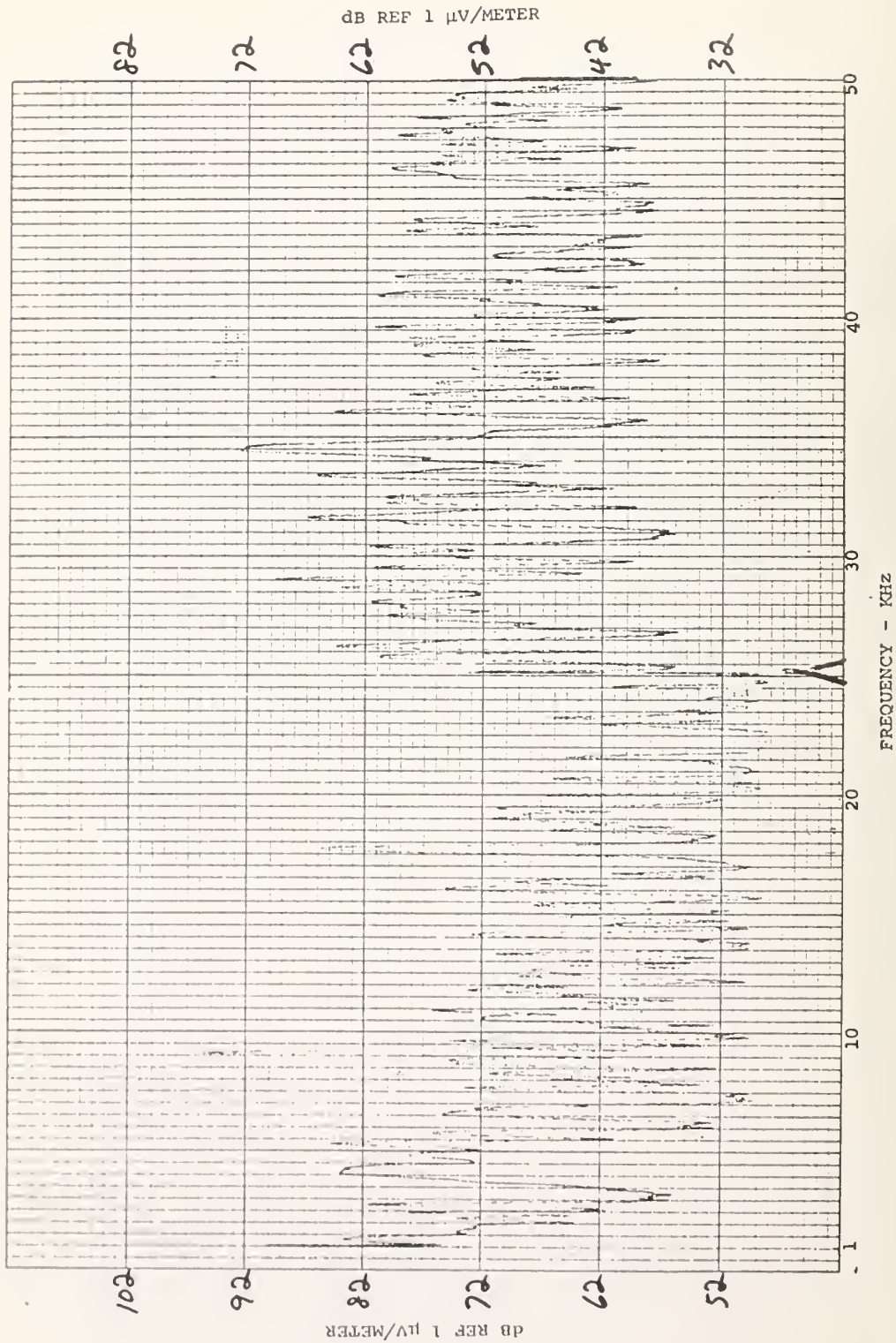


TEST NO. 318  
TEST SPECIMEN 2611

TEST TYPE ESR N/S  
TEST EQUIP. ENC-10

BANDWIDTH 50 Hz  
DATE 7-28-72

1441  
ES

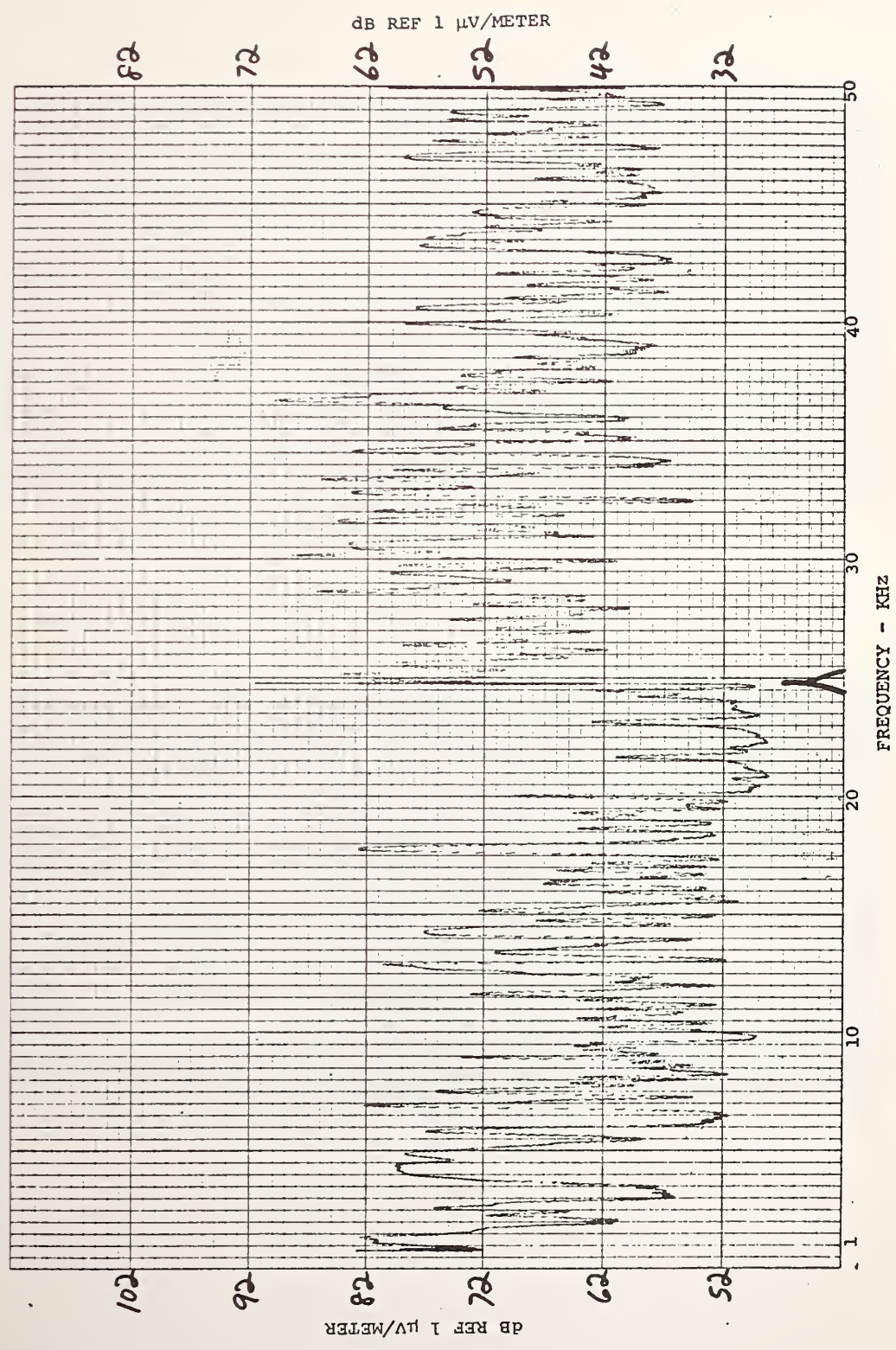


1444  
ESG

BANDWIDTH 50Hz  
DATE 7-28-72

TEST TYPE ESR N/S  
TEST EQUIP. EMC-10

TEST NO. 319  
TEST SPECIMEN 2611



LOCATION: SITE 11 TYPE TEST ESR DATE 7-28-72



50 FREQ. 75 KHz 100

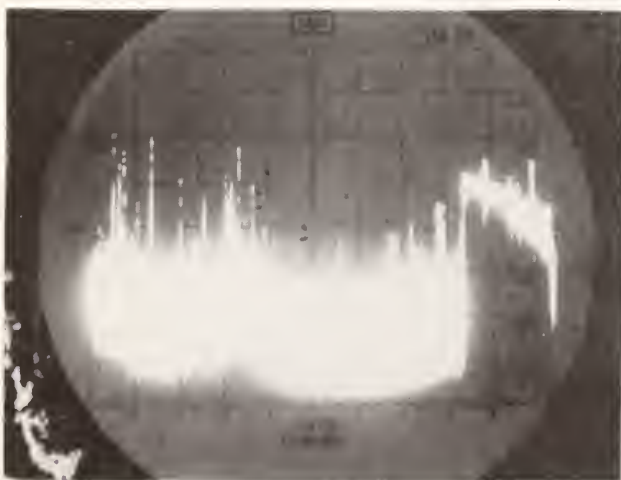
153  
133  
113  
93  
73

TEST 322

TIME 1456

FREQ. SCAN: 5 KHz/Div.

Bandwidth: 10 KHz

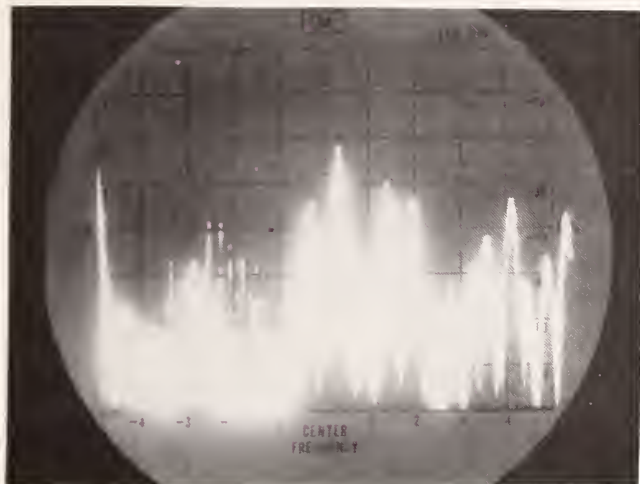


153  
133  
113  
93  
73

TEST 322

TIME 1458

LOCATION: SITE 11 TYPE TEST ESR DATE 7-28-72



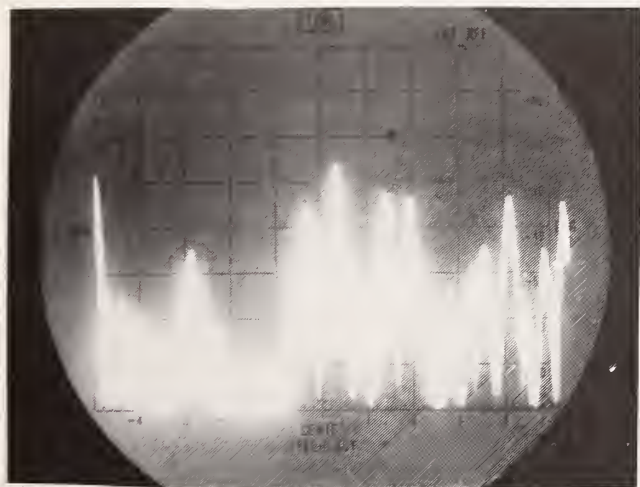
153  
133  
113  
93  
73

TEST 321  
TIME 1453

0.1 FREQ. 0.6 MHz 1.1

FREQ. SCAN: 0.1 MHz/Div.

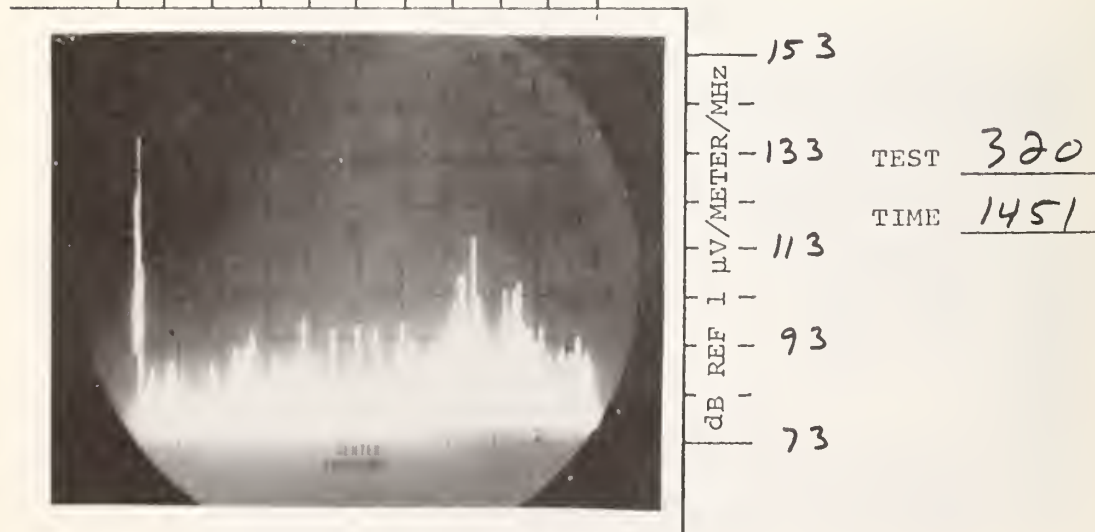
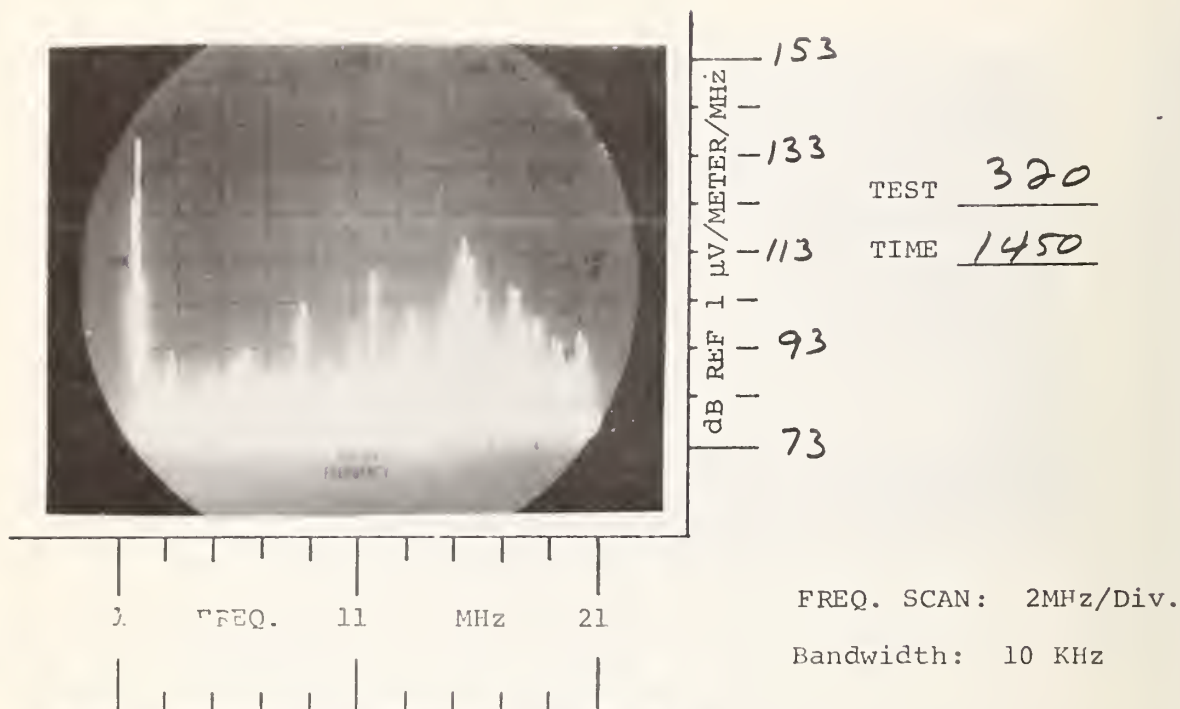
Bandwidth. 10 KHz



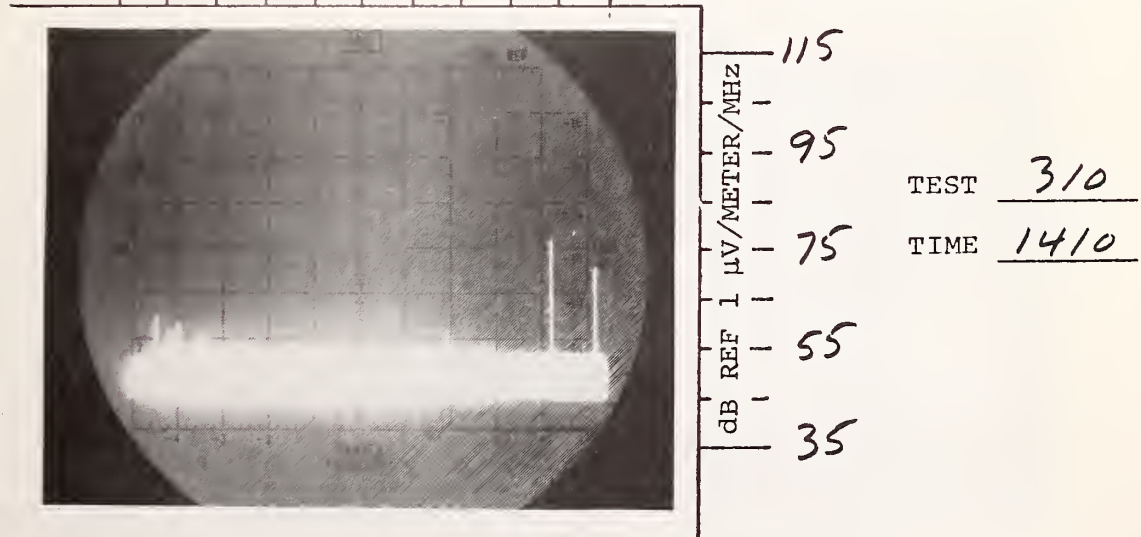
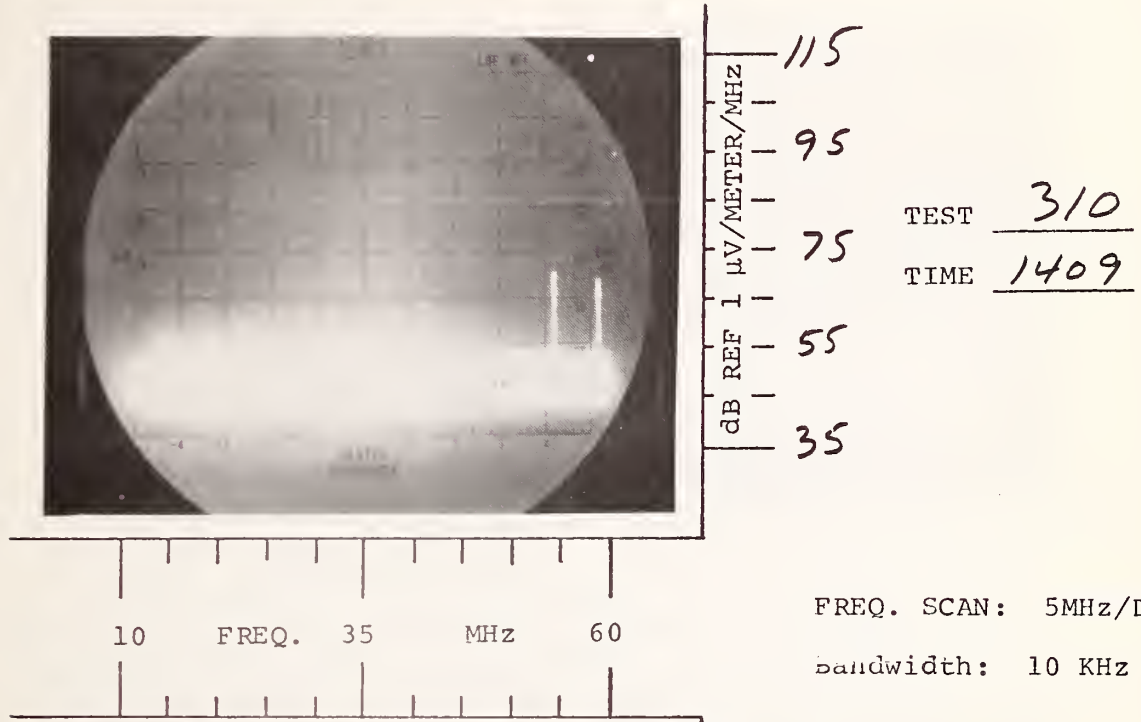
153  
133  
113  
93  
73

TEST 321  
TIME 1454

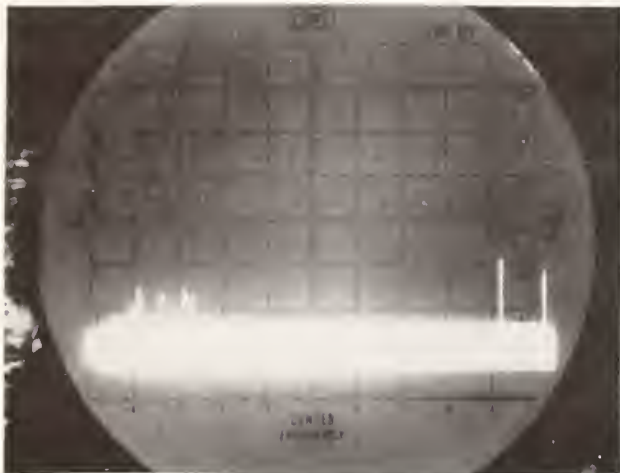
LOCATION: SITE 11 TYPE TEST ESR DATE 7-28-72



LOCATION: SITE 11 TYPE TEST ESR EIW DATE 7-28-72



LOCATION: SITE 11 TYPE TEST ESR N/S DATE 7-28-72



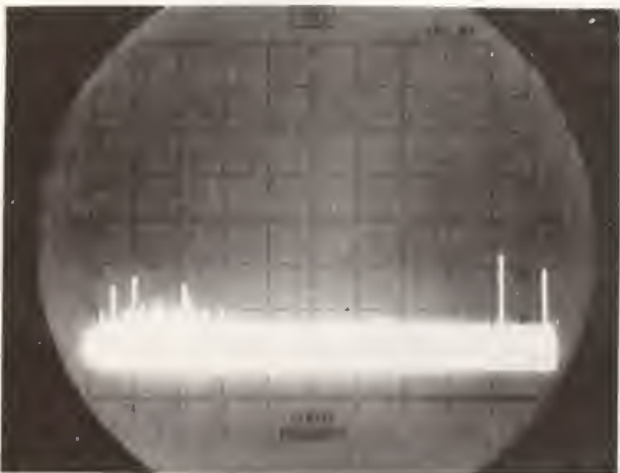
10 FREQ. 35 MHz 60

dB REF 1  $\mu$ V/METER/MHz  
 115  
 95  
 75  
 55  
 35

TEST 311  
 TIME 1411

FREQ. SCAN: 5MHz/Div.

Bandwidth: 10 KHz



dB REF 1  $\mu$ V/METER/MHz  
 115  
 95  
 75  
 55  
 35

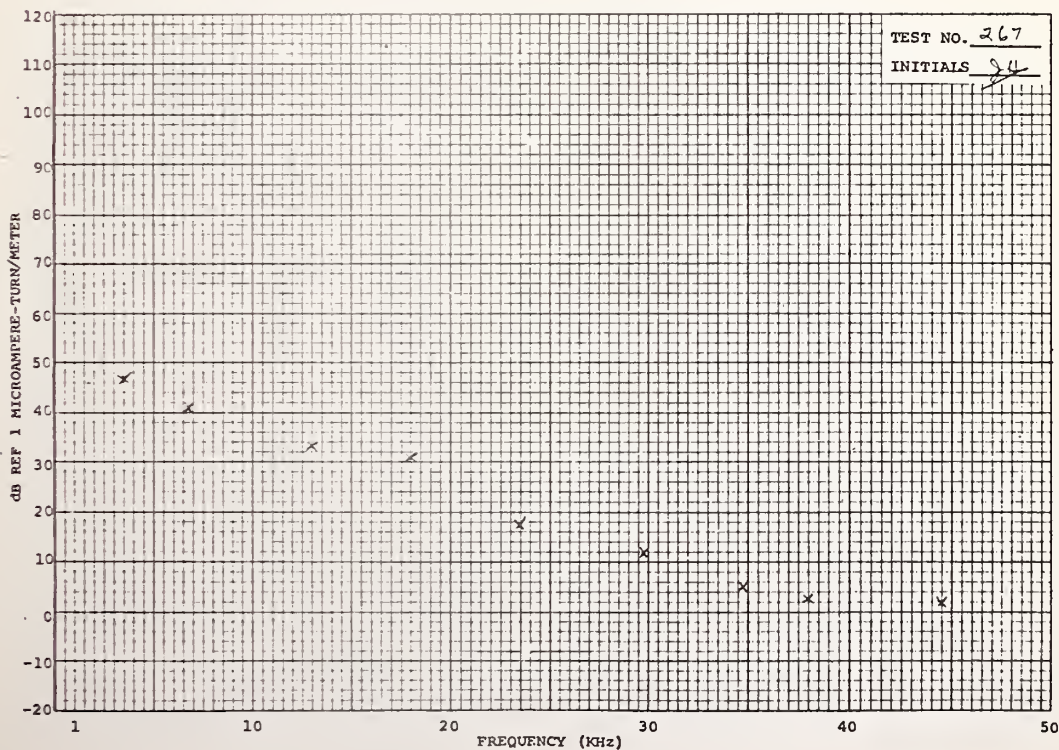
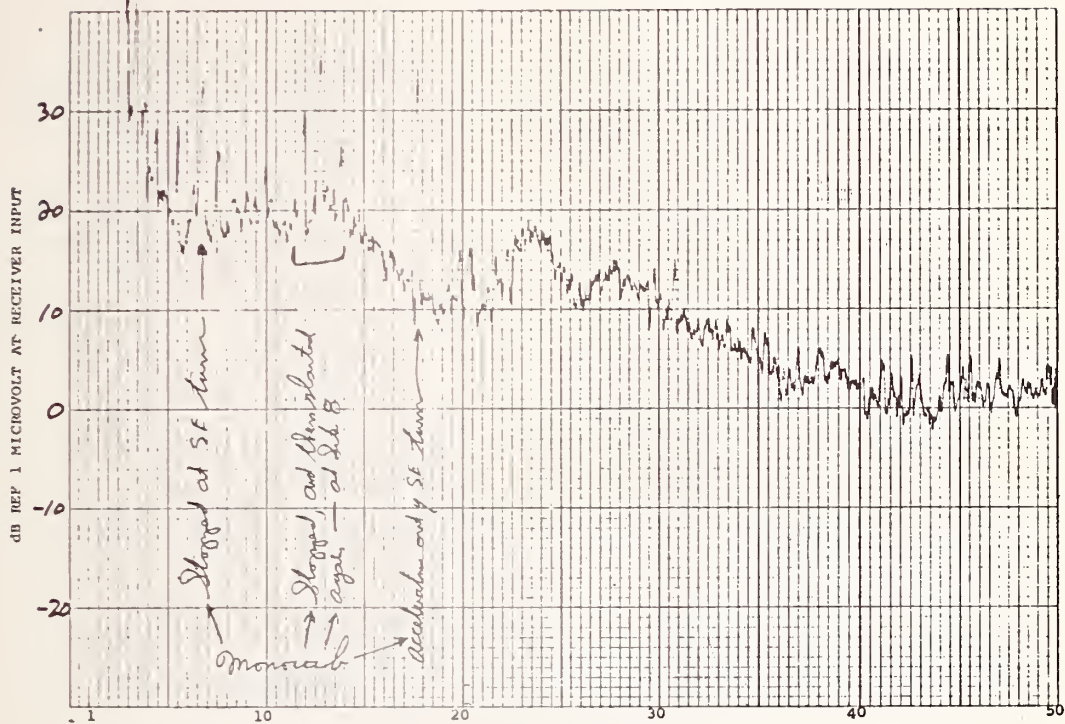
TEST 311  
 TIME 1412

TEST NO. 267  
TEST SPECIMEN S-6 B

TEST TYPE MSR E/W  
TEST EQUIP. FMC-10

BANDWIDTH 50 Hz  
DATE 7-27-72

1547  
887

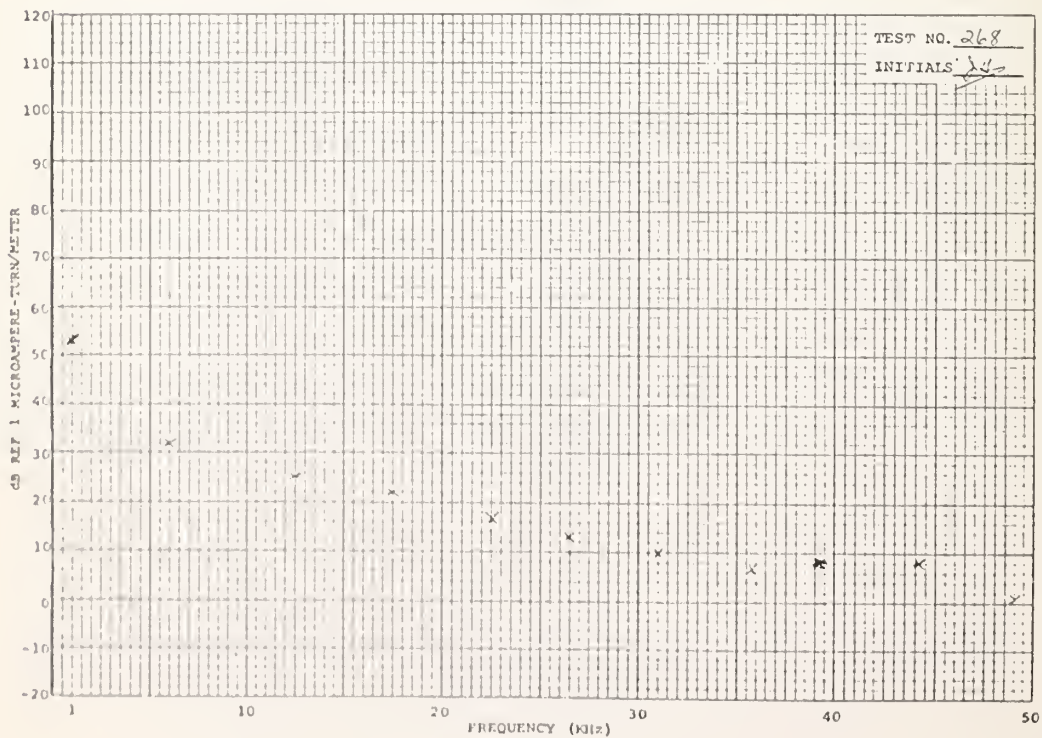
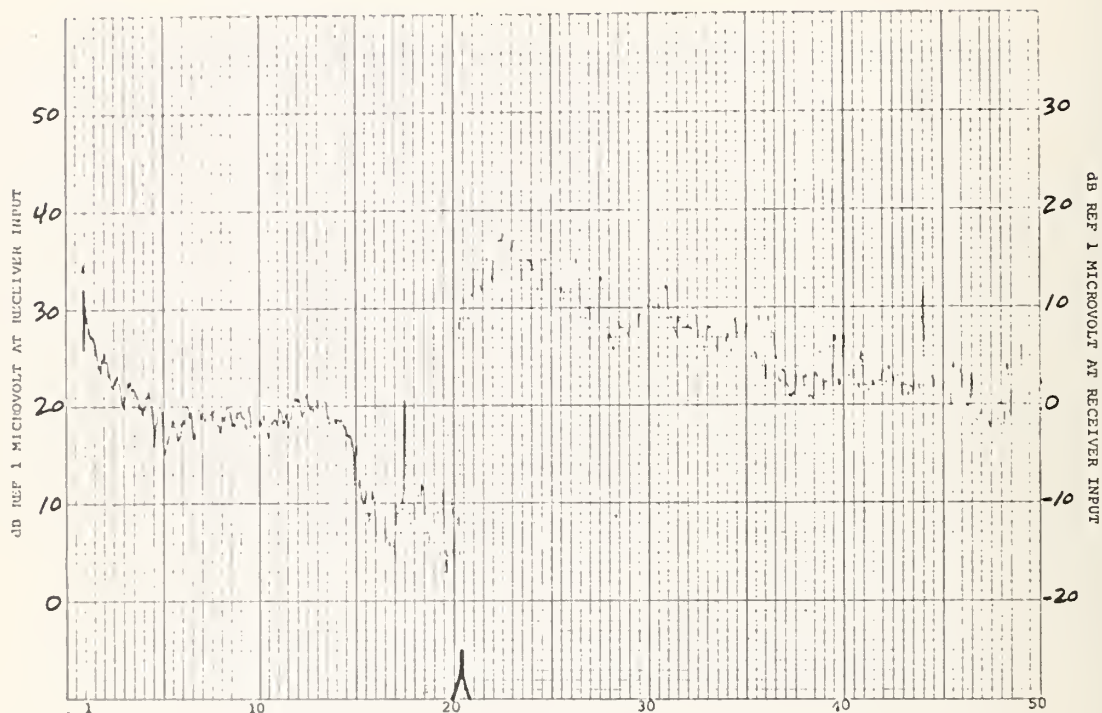


TEST NO. 268  
TEST SPECIMEN 268

TEST TYPE MSR F/L  
TEST EQUIP. EMC-10

BANDWIDTH 50Hz  
DATE 7-21-72

1557  
EEJ

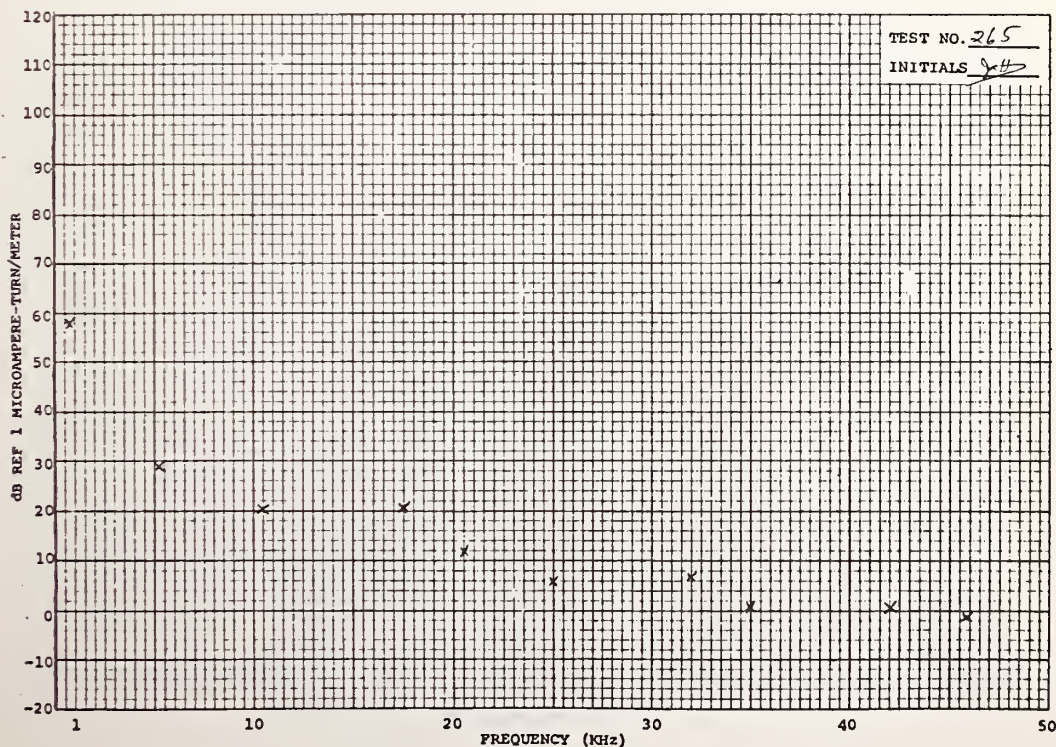
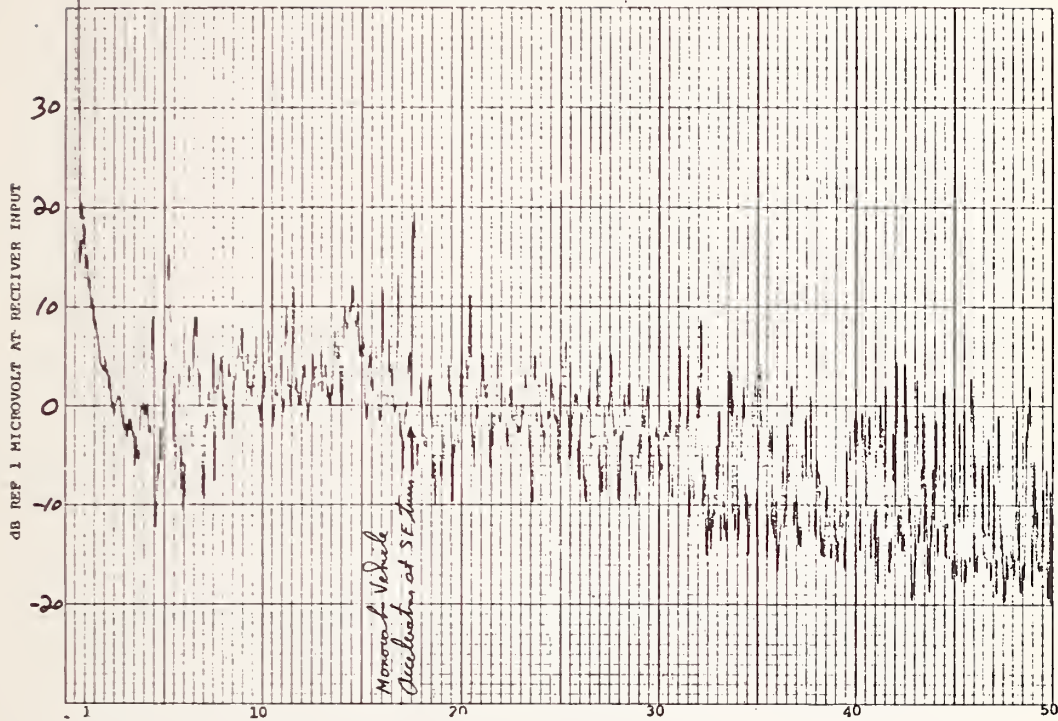


TEST NO. 265  
TEST SPECIMEN 868

TEST TYPE MSR N/S  
TEST EQUIP. ENC-10

BANDWIDTH 50 Hz  
DATE 7-27-72

1537  
*Ref*

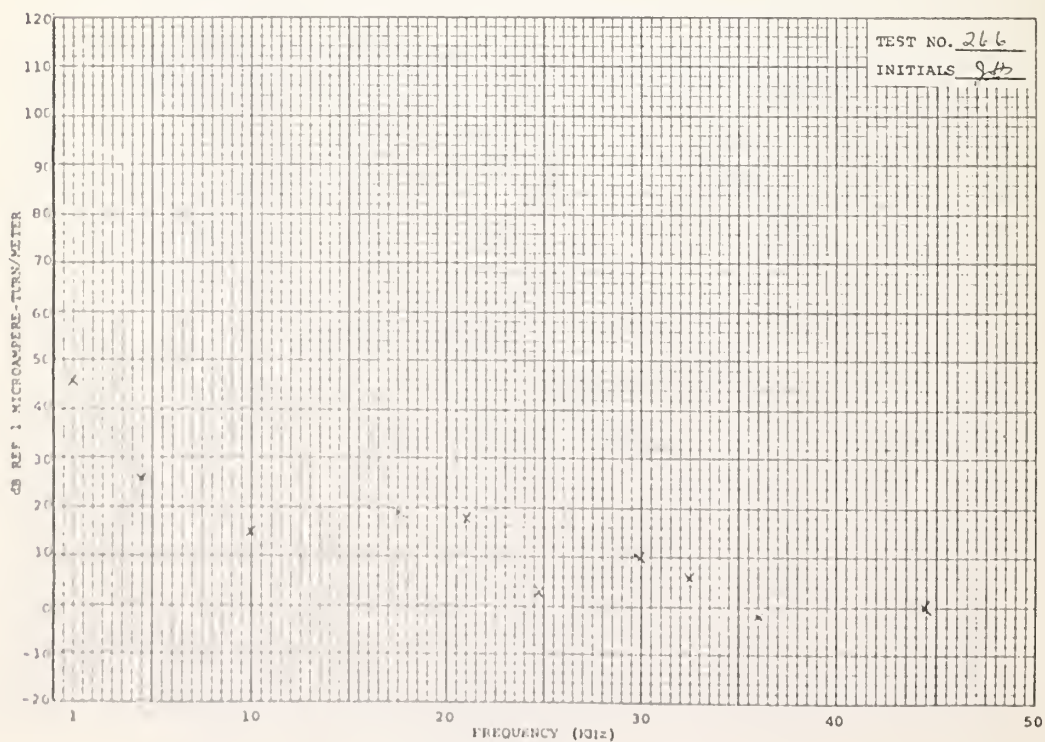
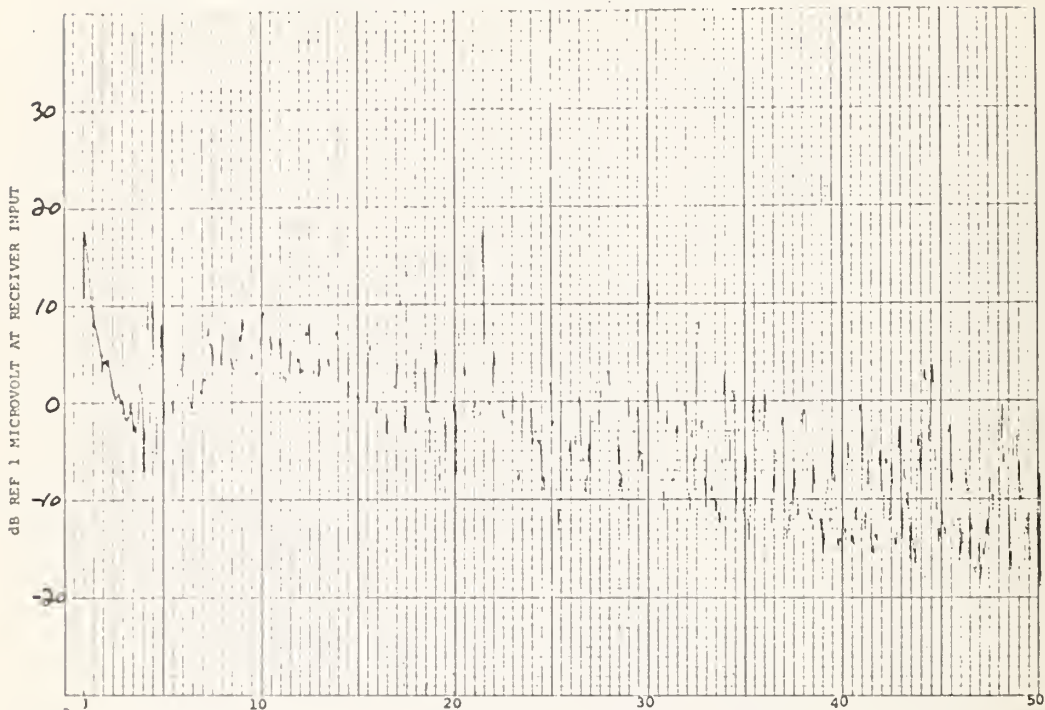


TEST NO. 266  
TEST SPECIMEN 868

TEST TYPE MSP N/S  
TEST EQUIP. FM-10

BANDWIDTH 50 Hz  
DATE 7-27-72

1542  
EEJ

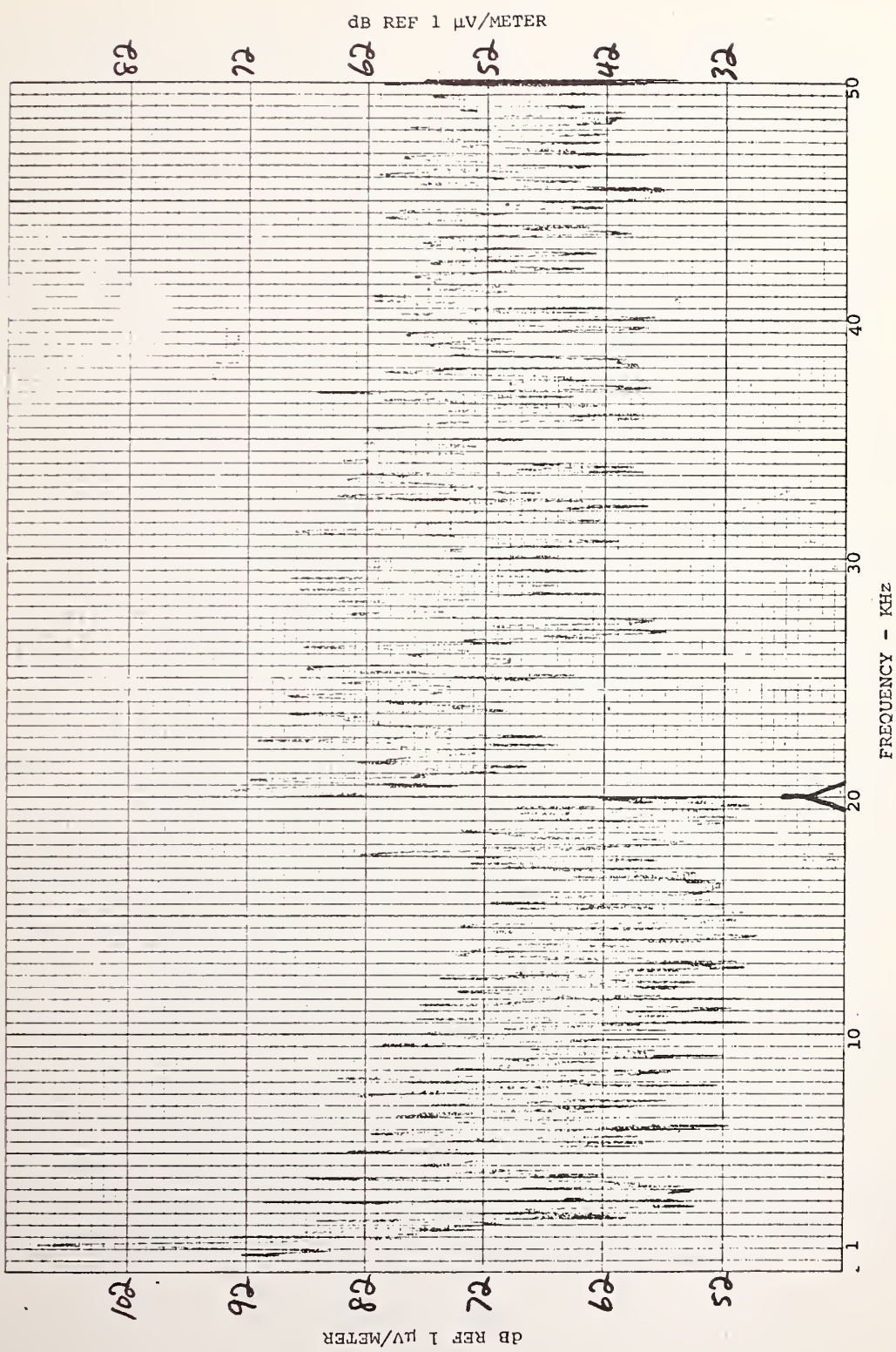


1425  
E8

BANDWIDTH 50 Hz  
DATE 7-26-74

TEST TYPE ESR E/W  
TEST EQUIP. EMC-10

TEST NO. 223  
TEST SPECIMEN 8.6 B

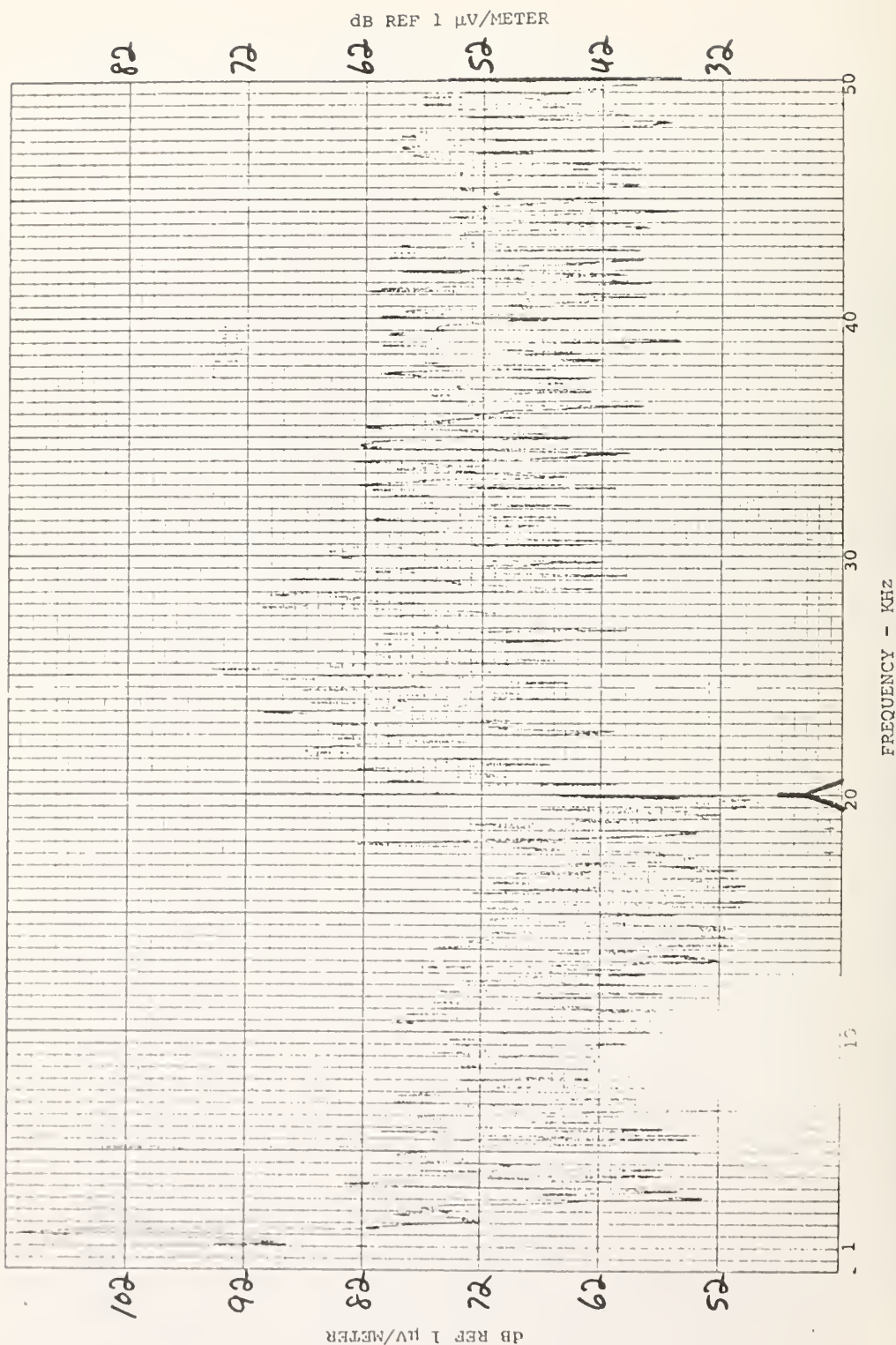


1430  
EJ

BANDWIDTH 50 Hz  
DATE 7-26-72

TEST TYPE ESR E/V  
TEST EQUIP. EMC-10

TEST NO. 224  
TEST SPECIMEN 8.4.8

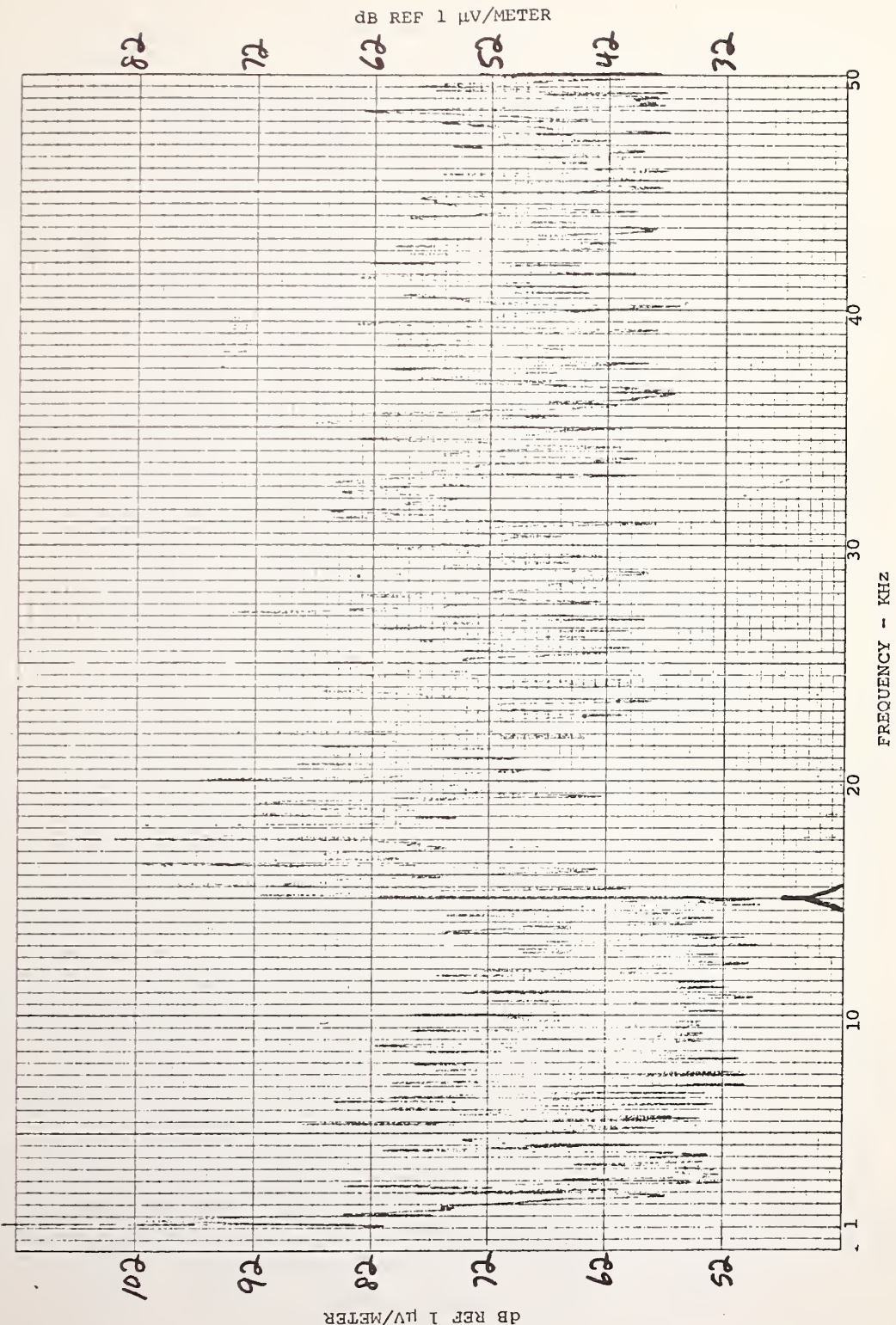


1416  
ESJ

BANDWIDTH 50Hz  
DATE 7-26-72

TEST TYPE ESR N/S  
TEST EQUIP. EMC-10

TEST NO. 221  
TEST SPECIMEN 2A8

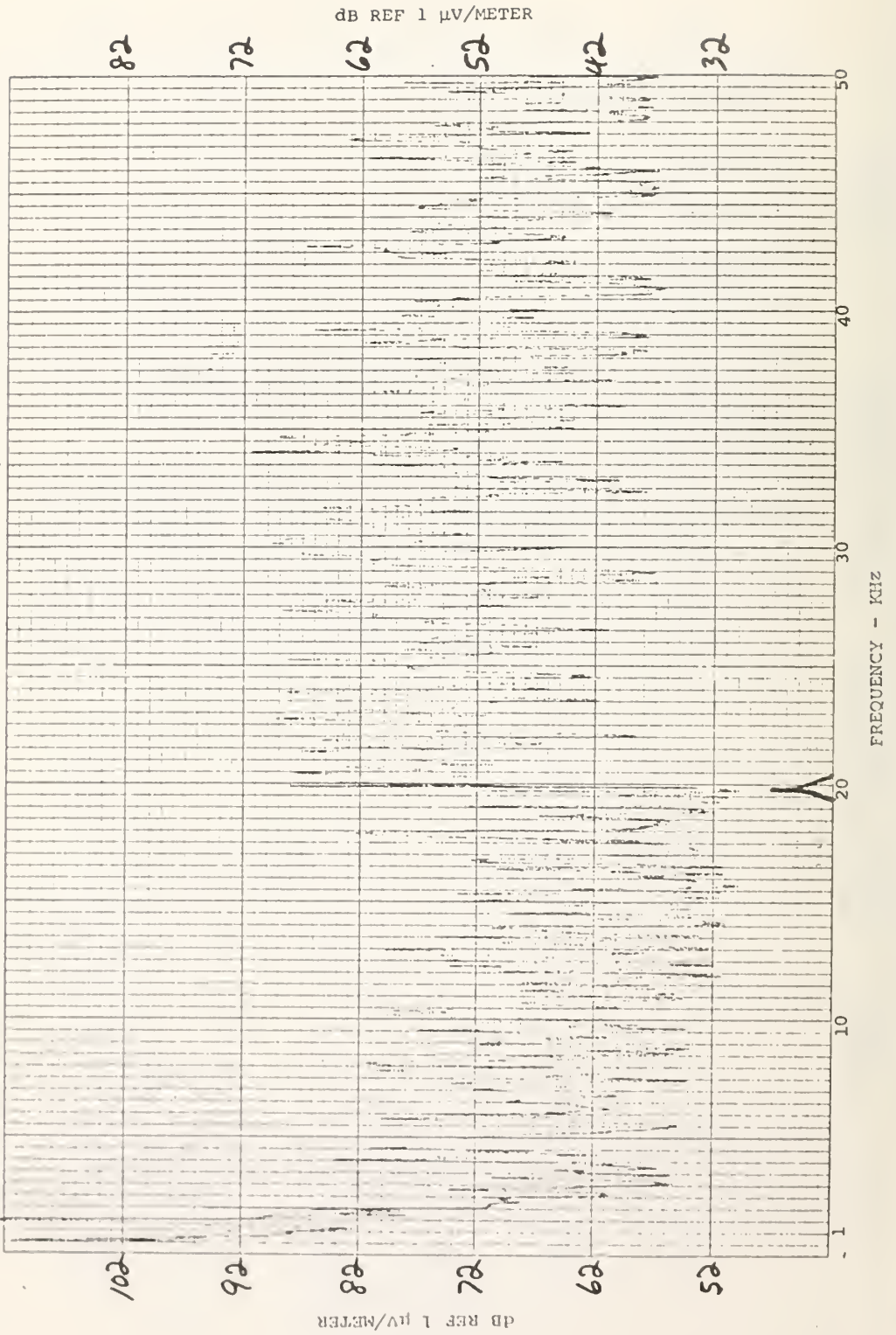


TEST NO. 222  
TEST SPECIMEN Sub 8

TEST TYPE ESR N/S  
TEST EQUIP. EMC-10

BANDWIDTH 50 Hz  
DATE 7-26-72

1420  
89

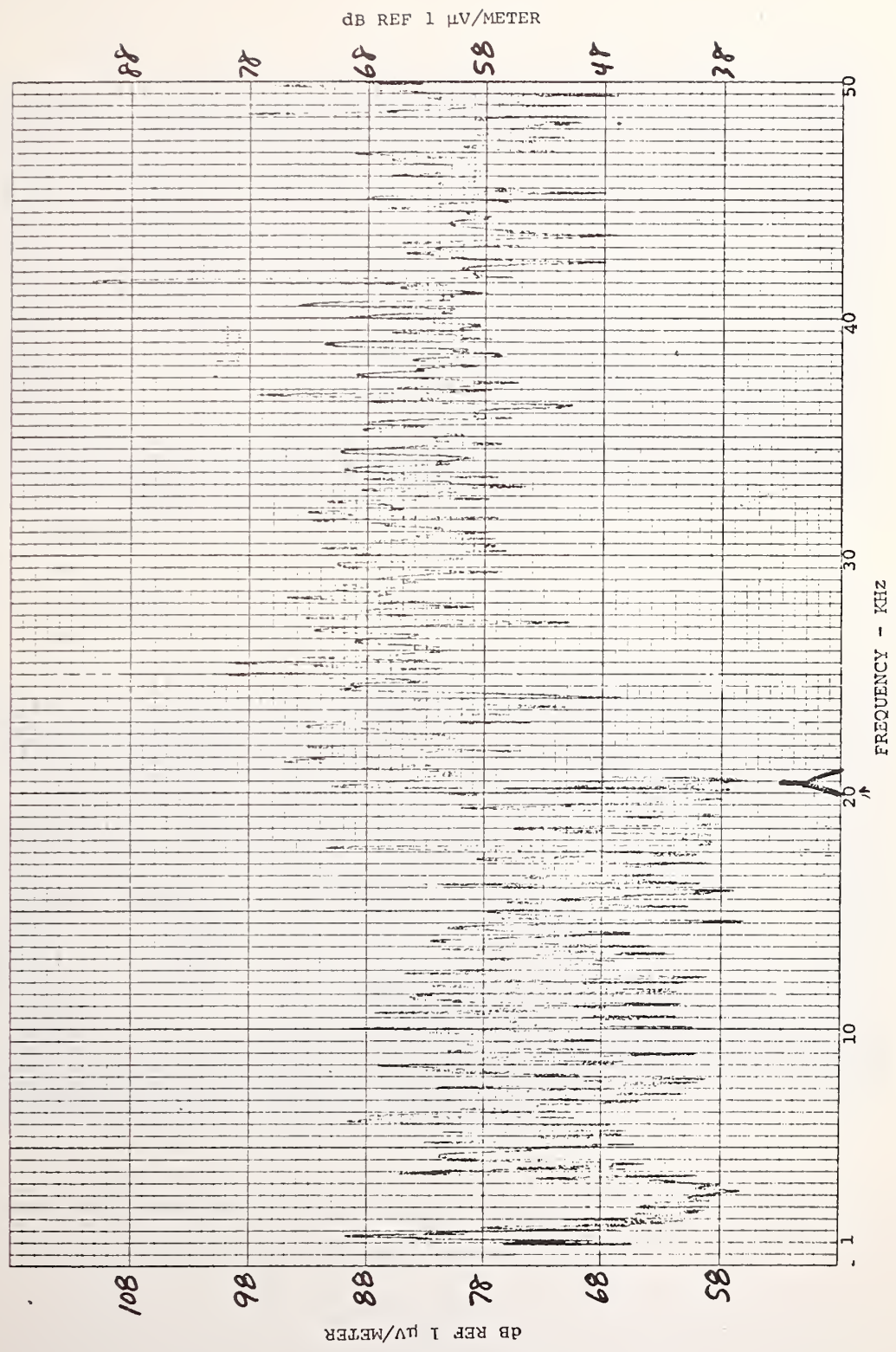


1438  
ESF

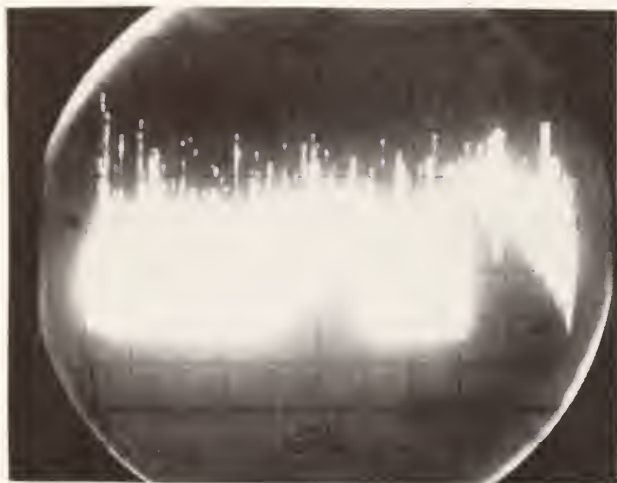
BANDWIDTH 50Hz  
DATE 7-26-72

TEST TYPE ESR  
TEST EQUIP. EMC-10 + C.F.

TEST NO. 225  
TEST SPECIMEN 2.6.8



LOCATION: SITE 8 TYPE TEST ESR DATE 7-26-72



153  
133  
113  
93  
73

TEST 226

TIME 1449

50 FREQ. 75 KHz 100

FREQ. SCAN: 5 KHz/Div.

Bandwidth: 10 KHz

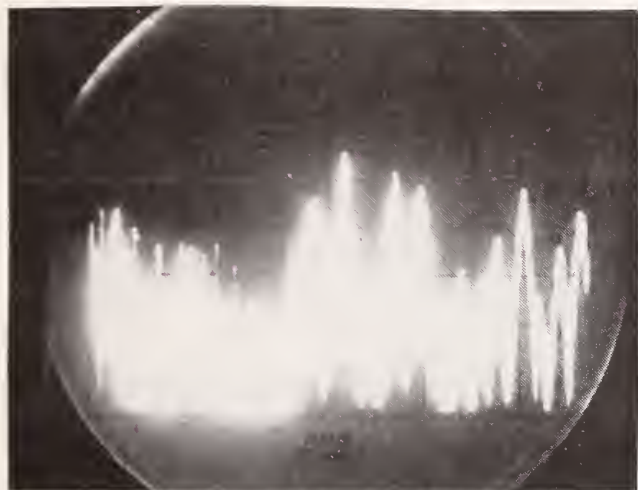


153  
133  
113  
93  
73

TEST 226

TIME 1451

LOCATION: SITE 8 TYPE TEST ESR DATE 7-26-72



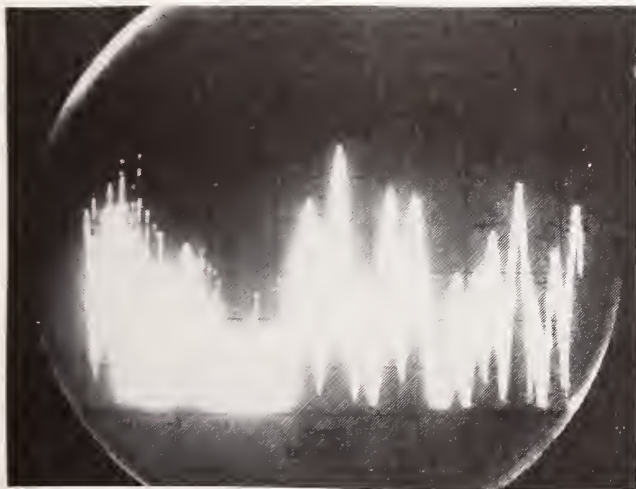
153  
133  
113  
93  
73

TEST 227  
TIME 1454

0.1 FREQ. 0.6 MHz 1.1

FREQ. SCAN: 0.1 MHz/Div.

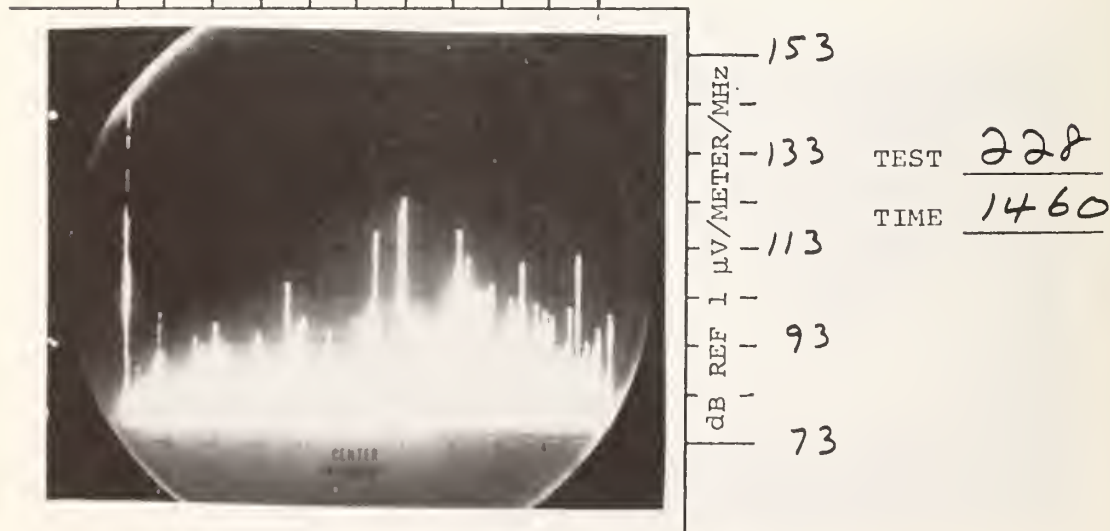
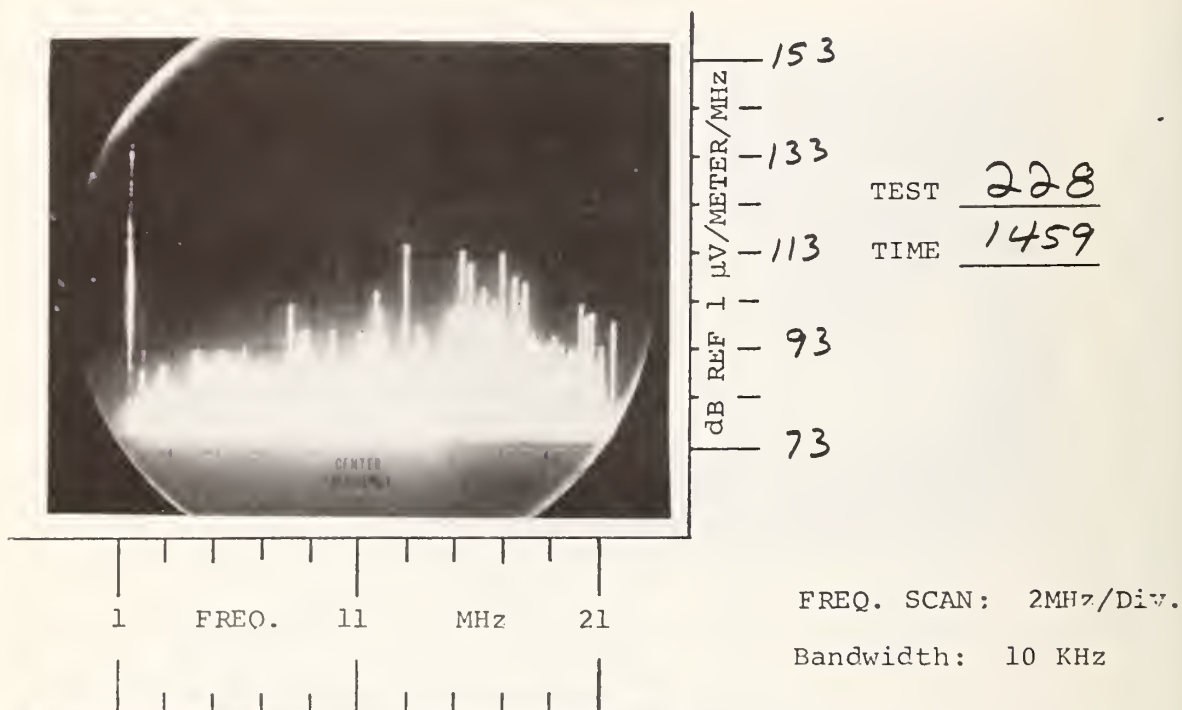
Bandwidth: 10 KHz



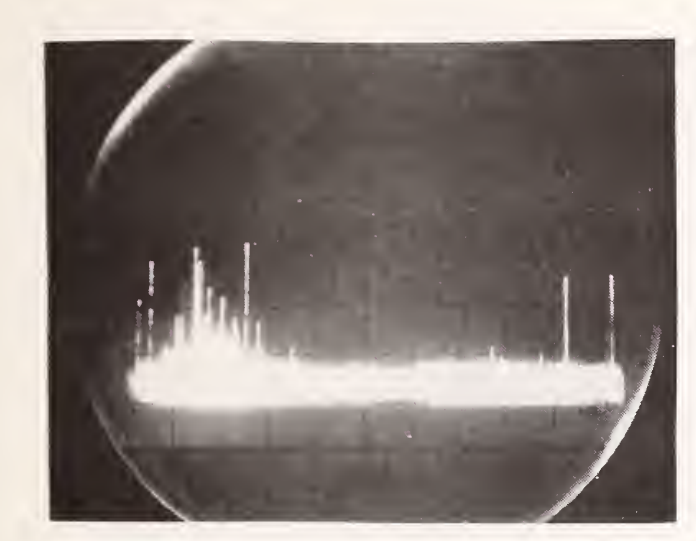
153  
133  
113  
93  
73

TEST 227  
TIME 1457

LOCATION: SITE 8 TYPE TEST ESR DATE 7-26-72



LOCATION: SITE 8 TYPE TEST ESR E/W DATE 7-26-72



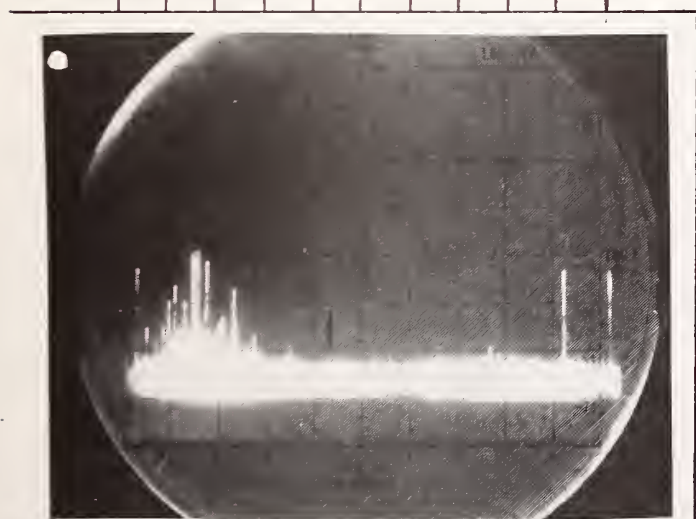
115  
95  
75  
55  
35  
dB REF 1  $\mu$ V/METER/MHz

TEST 229  
TIME 1504

10 FREQ. 35 MHz 60

FREQ. SCAN: 5MHz/Div.

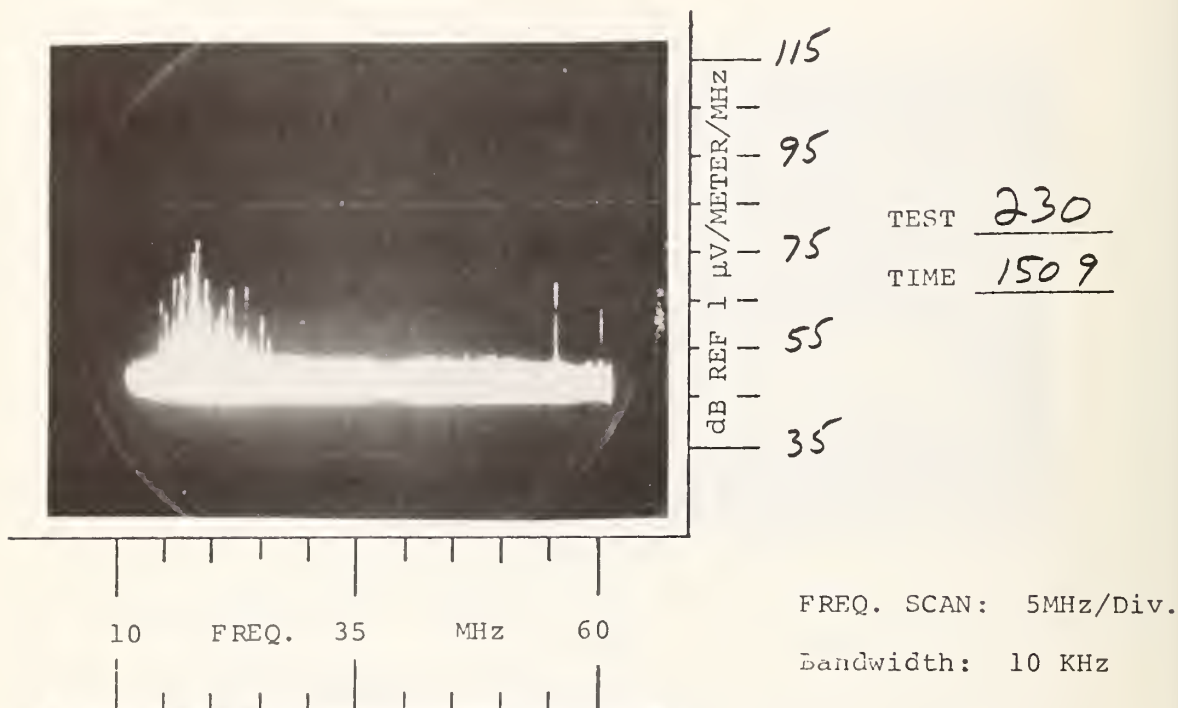
Bandwidth: 10 KHz



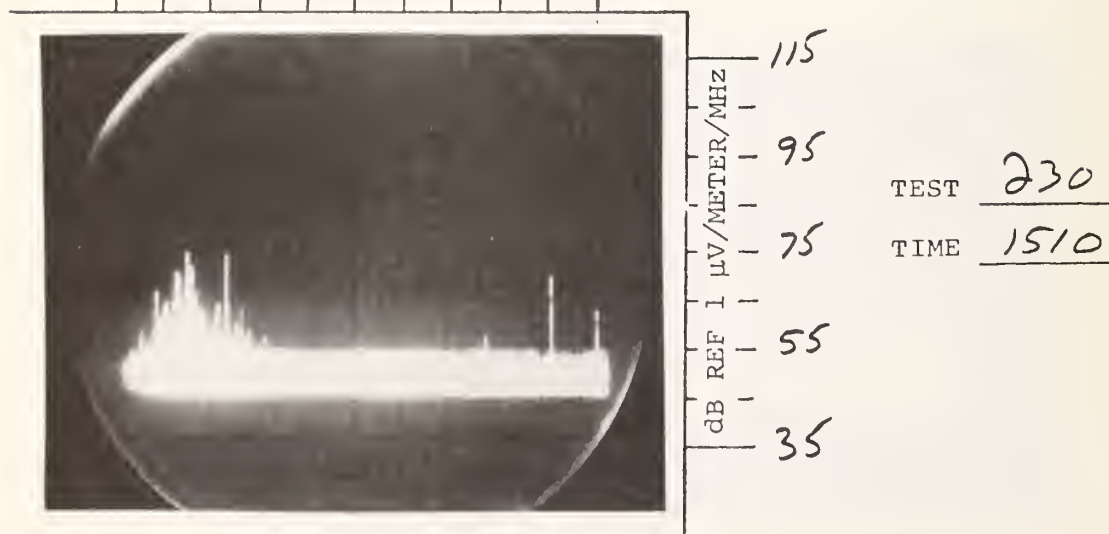
115  
95  
75  
55  
35  
dB REF 1  $\mu$ V/METER/MHz

TEST 229  
TIME 1506

LOCATION: SITE 8 TYPE TEST ESR N/S DATE 7-26-72



TEST 230  
TIME 1509



TEST 230  
TIME 1510

APPENDIX B

TIME LOGS

The appendix contains the time logs of events for vehicle operation:

Site 3: B-2 to B-10

Site 4: B-11 to B-22

Site 11: B-23 to B-27

Site 8: B-28 to B-38

TTI SYSTEM

July 24, 1972

13:45 - 1445 Two vehicles running automatic.



DULLES SYSTEM

ORIGINATOR E.M. Pallock

O.D. READING \_\_\_\_\_ MILES

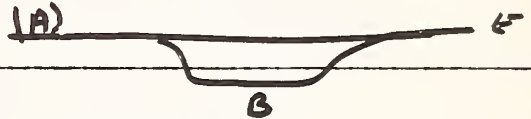
VEHICLE Shirley & Rachel

HOUR METER READING \_\_\_\_\_ HOURS

DATE 7-24-76

1 vehicle cycle - 2 min 1.25 sec (approx)

Item or Subject: \_\_\_\_\_



Explanations:

R - Rachel  
S - Shirley

- 1:05 - Both lanes, power turned on - begin operation  
 1:08 - R @ B, S @ A  
 1:09:20 - R → E (100')  
 1:10 to 1:12 [R → B → A (100') → B]  
 1:13 R @ B, S @ A  
 1:35 S → E (100') → E → A, R  
 1:37 R → E, S @ A → B  
 1:38 S @ B, R @ E → A  
 1:41 S @ B → E, R @ A → B but stop at fog!  
 1:45 R comes from fog to B, S stop at E  
 1:47:15 Begin cycle again S @ E → A, R @ B → E → A, S @ A → B → E,  
 1:51:20 R @ A comes to B.  
 1:56:15 Switch from two vehicle to one vehicle mode, R @ B.  
 1:56:15 ~~THH THH THH THH~~ THH THH THH THH <sup>12 min</sup>  
 Station stop 30 sec to pick up APC equipment  
 and adjust air conditioning  
 2:37:15 - Begin single vehicle mode again.  
 2:39:40 (Long station stop from 2:39:40 to  
 2:51:10 Start again.  
 2:51:10 ~~THH THH THH THH~~ THH THH THH THH - 3:14:05 (Power down - reset vehicle breakers - pull main circuit  
 3:17:10 Main lane power on - begin cycles.  
 3:17:10 ~~THH THH THH THH~~ THH THH THH THH  
 3:37:32 Shut down vehicle  
 3:40:25 Start again  
 3:42:50 Shut down vehicle  
 3:42:50 ~~THH THH THH THH~~ THH THH THH THH  
 3 cycles @ 2 vehicle mode; 37 cycles @ 1 vehicle mode

Form JTS-5

Aschavoye - Bendix

SPQ® 72 COMPUTER SYSTEM START UP

RESTRICTIONS?  
NEW CONFIGURATION? Y  
CONFIGURATION CHANGE  
MODE (D,S):  
CLASS 2 FAILURE - VEHICLE B  
S  
SENTHRU (FOR A,B,E,F,G,P,Q ONLY!)?  
CONFIGURATION (A-V): A  
VEHICLE(S) (A,B,2): B  
ACCEPTED  
CONFIGURATION MODE OPERATING VEHICLE  
A S B

READY Y  
READY

ELECTRIFY? Y  
BEGIN ELECTRIFICATION

READY  
--X=14:02:20  
11 F 14:02:20

ARRIVAL VEH B STA N AT 14:03:16  
SCHEDULED ARRIVAL 14:00:37

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA C AT 14:04:46  
SCHEDULED ARRIVAL 14:04:07

CLASS 3 FAILURE - VEHICLE B

ARRIVAL VEH B STA S AT 14:05:41  
SCHEDULED ARRIVAL 14:04:26

ARRIVAL VEH B STA N AT 14:06:49  
SCHEDULED ARRIVAL 14:04:45

SCHEDULE RE-ADJUSTED FOR VEHICLE B

VEHICLE B EMERGENCY STOP AT STATION C

VEH B IMPROPER BERTHING AT STATION C - UNDERSHOOT

ARRIVAL VEH B STA C AT 14:08:15  
SCHEDULED ARRIVAL 14:07:39

ARRIVAL VEH B STA S AT 14:09:00  
SCHEDULED ARRIVAL 14:07:58

ARRIVAL VEH B STA N AT 14:10:09  
SCHEDULED ARRIVAL 14:08:17

SCHEDULE RE-ADJUSTED FOR VEHICLE B

FAI Test  
24

ARRIVAL VEH B STA C AT 14:11:23  
SCHEDULED ARRIVAL 14:11:00

ARRIVAL VEH B STA S AT 14:12:08  
SCHEDULED ARRIVAL 14:11:19

ARRIVAL VEH B STA N AT 14:13:16  
SCHEDULED ARRIVAL 14:11:38

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA C AT 14:16:33  
SCHEDULED ARRIVAL 14:14:05

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 14:17:21  
SCHEDULED ARRIVAL 14:17:32

ARRIVAL VEH B STA N AT 14:18:48  
SCHEDULED ARRIVAL 14:18:51

ARRIVAL VEH B STA C AT 14:19:50  
SCHEDULED ARRIVAL 14:19:40

ARRIVAL VEH B STA S AT 14:20:44  
SCHEDULED ARRIVAL 14:19:59

ARRIVAL VEH B STA N AT 14:21:52  
SCHEDULED ARRIVAL 14:20:18

ARRIVAL VEH B STA C AT 14:22:47  
SCHEDULED ARRIVAL 14:20:37

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 14:23:34  
SCHEDULED ARRIVAL 14:23:46

ARRIVAL VEH B STA N AT 14:25:01  
SCHEDULED ARRIVAL 14:25:04

ARRIVAL VEH B STA C AT 14:26:00  
SCHEDULED ARRIVAL 14:25:53

ARRIVAL VEH B STA S AT 14:26:47  
SCHEDULED ARRIVAL 14:26:13

ARRIVAL VEH B STA N AT 14:27:54  
SCHEDULED ARRIVAL 14:26:32

ARRIVAL VEH B STA C AT 14:29:07  
SCHEDULED ARRIVAL 14:26:50

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 14:29:57  
SCHEDULED ARRIVAL 14:30:07

ARRIVAL VEH B STA N AT 14:31:22  
SCHEDULED ARRIVAL 14:31:25

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 14:29:57  
SCHEDULED ARRIVAL 14:30:07

ARRIVAL VEH B STA N AT 14:31:22  
SCHEDULED ARRIVAL 14:31:25

ARRIVAL VEH B STA C AT 14:32:25  
SCHEDULED ARRIVAL 14:32:14

ARRIVAL VEH B STA S AT 14:33:23  
SCHEDULED ARRIVAL 14:32:33

ARRIVAL VEH B STA N AT 14:34:32  
SCHEDULED ARRIVAL 14:32:52

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA C AT 14:35:29  
SCHEDULED ARRIVAL 14:35:23

ARRIVAL VEH B STA S AT 14:36:16  
SCHEDULED ARRIVAL 14:35:42

ARRIVAL VEH B STA N AT 14:37:24  
SCHEDULED ARRIVAL 14:36:01

ARRIVAL VEH B STA C AT 14:38:19  
SCHEDULED ARRIVAL 14:36:20

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 14:39:02  
SCHEDULED ARRIVAL 14:39:18

ARRIVAL VEH B STA N AT 14:40:34  
SCHEDULED ARRIVAL 14:40:37

ARRIVAL VEH B STA C AT 14:41:52  
SCHEDULED ARRIVAL 14:41:26

ARRIVAL VEH B STA S AT 14:42:36  
SCHEDULED ARRIVAL 14:41:45

ARRIVAL VEH B STA N AT 14:43:44  
SCHEDULED ARRIVAL 14:42:04

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA C AT 14:44:49  
SCHEDULED ARRIVAL 14:44:34

ARRIVAL VEH B STA S AT 14:45:32  
SCHEDULED ARRIVAL 14:44:53

ARRIVAL VEH B STA N AT 14:46:40  
SCHEDULED ARRIVAL 14:45:12

ARRIVAL VEH B STA C AT 14:47:43  
SCHEDULED ARRIVAL 14:45:31

ARRIVAL VEH B STA N AT 14:49:57  
SCHEDULED ARRIVAL 14:50:01

ARRIVAL VEH B STA C AT 14:51:07  
SCHEDULED ARRIVAL 14:50:49

ARRIVAL VEH B STA S AT 14:51:50  
SCHEDULED ARRIVAL 14:51:09

ARRIVAL VEH B STA N AT 14:52:57  
SCHEDULED ARRIVAL 14:51:28

ARRIVAL VEH B STA C AT 14:54:10  
SCHEDULED ARRIVAL 14:51:46

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 14:54:59  
SCHEDULED ARRIVAL 14:55:10

ARRIVAL VEH B STA N AT 14:56:25  
SCHEDULED ARRIVAL 14:56:28

ARRIVAL VEH B STA C AT 14:57:29  
SCHEDULED ARRIVAL 14:57:17

ARRIVAL VEH B STA S AT 14:58:27  
SCHEDULED ARRIVAL 14:57:36

ARRIVAL VEH B STA N AT 14:59:37  
SCHEDULED ARRIVAL 14:57:55

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA C AT 15:00:28  
SCHEDULED ARRIVAL 15:00:28

ARRIVAL VEH B STA S AT 15:01:31  
SCHEDULED ARRIVAL 15:00:47

ARRIVAL VEH B STA N AT 15:02:40  
SCHEDULED ARRIVAL 15:01:06

ARRIVAL VEH B STA C AT 15:05:58  
SCHEDULED ARRIVAL 15:01:23

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 15:06:31  
SCHEDULED ARRIVAL 15:06:58

ARRIVAL VEH B STA N AT 15:08:13  
SCHEDULED ARRIVAL 15:08:16

ARRIVAL VEH B STA C AT 15:09:06  
SCHEDULED ARRIVAL 15:09:05

ARRIVAL VEH B STA S AT 15:09:51  
SCHEDULED ARRIVAL 15:09:25

ARRIVAL VEH B STA N AT 15:10:59  
SCHEDULED ARRIVAL 15:00:00

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 15:13:11  
SCHEDULED ARRIVAL 15:12:54

ARRIVAL VEH B STA N AT 15:14:25  
SCHEDULED ARRIVAL 15:13:13

ARRIVAL VEH B STA C AT 15:15:24  
SCHEDULED ARRIVAL 15:13:32

SCHEDULE RE-ADJUSTED FOR VEHICLE B

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ARRIVAL VEH B STA C AT 15:18:41  
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ARRIVAL VEH B STA S AT 15:19:25  
SCHEDULED ARRIVAL 15:18:50

ARRIVAL VEH B STA N AT 15:20:35  
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SCHEDULED ARRIVAL 15:25:14

ARRIVAL VEH B STA C AT 15:27:45  
SCHEDULED ARRIVAL 15:25:33

SCHEDULE RE-ADJUSTED FOR VEHICLE B

VEH B IMPROPER BERTHING AT STATION S - UNDERSHOOT

ARRIVAL VEH B STA S AT 15:29:15  
SCHEDULED ARRIVAL 15:28:43

ARRIVAL VEH B STA N AT 15:30:09  
SCHEDULED ARRIVAL 15:29:02

ARRIVAL VEH B STA C AT 15:31:00

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 15:22:13  
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ARRIVAL VEH B STA N AT 15:23:43  
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SCHEDULE RE-ADJUSTED FOR VEHICLE B

VEH B IMPROPER BERTHING AT STATION S - UNDERSHOOT

ARRIVAL VEH B STA S AT 15:29:15  
SCHEDULED ARRIVAL 15:28:43

ARRIVAL VEH B STA N AT 15:30:09  
SCHEDULED ARRIVAL 15:29:02

ARRIVAL VEH B STA C AT 15:31:04  
SCHEDULED ARRIVAL 15:29:21

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 15:31:59  
SCHEDULED ARRIVAL 15:32:04

ARRIVAL VEH B STA N AT 15:33:20  
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ARRIVAL VEH B STA C AT 15:34:17  
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ARRIVAL VEH B STA S AT 15:35:13  
SCHEDULED ARRIVAL 15:34:30

ARRIVAL VEH B STA N AT 15:36:26  
SCHEDULED ARRIVAL 15:34:49

ARRIVAL VEH B STA C AT 15:37:21  
SCHEDULED ARRIVAL 15:35:08

SCHEDULE RE-ADJUSTED FOR VEHICLE B

MONOCAB SYSTEM  
July 24, 1972

- 1:42 PM - Applied guideway power. Insert vehicle #2 in manual on by-pass loop.
- 1:50 PM - Removed guideway power to allow service vehicle and vehicle #1 to return to maintenance building.
- 1:58 PM - Reapplied guideway power. Vehicle #2 continued manual.
- 2:35 PM - Guideway power on. Vehicle stopped.
- 2:40 PM - Vehicle started in automatic.
- 2:57 PM - Vehicle stopped. Guideway power still on.
- 3:00 PM - Vehicle started in automatic.
- 3:48 PM - Vehicle shut-down.

TTI SYSTEM

August 1, 1972

14:10 Start two vehicle operation.

15:32 Shutdown of operations.



DULLES SYSTEM

CW 1000

ORIGINATOR \_\_\_\_\_

O.D. READING \_\_\_\_\_ MILES

VEHICLE RACHELHOUR METER READING ✓ HOURSDATE 8-1-72Item or Subject: Activity Record for EMI test

Explanations:

205 POWER TURN ON STATION LANE FOR SKIRLEY  
206 Begin 70th cycle on RACHEL  
208 " " " " " "

219 Begin 76th cycle on RACHEL  
222 " 77th " " "  
224 " 78th " " "  
227 " 79th " " "  
229 " 80th " " "  
232 " 81st " " "  
235 " 82nd " " "  
237 " 83rd " " "  
239 " 84th " " "  
241 " 85th " " "  
244 " 86th " " "

245 POWER SHUT DOWN  
251 POWER ON STATION LANE + MAIN LANE  
253 Begin 87th cycle on RACHEL  
256 " 88th " " "  
258 " 89th " " "

3100 " 90th " " " "  
3103 " 91st " " " "  
3105 " 92nd " " " "  
3107 " 93rd " " " "  
3110 " 94th " " " "  
3112 " 95th " " " "  
3114 " 96th " " " "

End

*Dachau*

Aug 1, 1972

Test operation

begins 15:00:00

TRANSPO® '72 COMPUTER SYSTEM START UP

RESTRICTIONS?

NEW CONFIGURATION? Y

CONFIGURATION CHANGE

MODE (D,S): S

RUNTHRU(FOR A,B,E,F,G,P,Q ONLY!)?

CONFIGURATION (A-V): A

VEHICLE(S) (A,B,2): 2

ACCEPTED

CONFIGURATION MODE OPERATING VEHICLE

A S A,B

OK? Y

READY

ELECTRIFY? Y

BEGIN ELECTRIFICATION

READY

ARRIVAL VEH B STA C AT 00:08:23

SCHEDULED ARRIVAL 00:08:38

ARRIVAL VEH A STA N AT 00:09:03

SCHEDULED ARRIVAL 00:09:37

ARRIVAL VEH B STA S AT 00:09:46

SCHEDULED ARRIVAL 00:09:35

ARRIVAL VEH A STA C AT 00:10:30

SCHEDULED ARRIVAL 00:10:26

VEHICLE B EMERGENCY STOP AT STATION S

CLASS 3 FAILURE - VEHICLE B

ARRIVAL VEH B STA N AT 00:10:50

SCHEDULED ARRIVAL 00:10:46

ARRIVAL VEH A STA S AT 00:11:33

SCHEDULED ARRIVAL 00:11:17

ARRIVAL VEH B STA C AT 00:11:57

SCHEDULED ARRIVAL 00:11:33

ARRIVAL VEH B STA S AT 00:12:55

SCHEDULED ARRIVAL 00:12:22

ARRIVAL VEH A STA N AT 00:12:59

SCHEDULED ARRIVAL 00:12:28

ARRIVAL VEH A STA C AT 00:13:49

## SCHEDULED ARRIVAL

ARRIVAL VEH A STA N AT 00:12:59  
SCHEDULED ARRIVAL 00:12:28

ARRIVAL VEH A STA C AT 00:13:49  
SCHEDULED ARRIVAL 00:13:15

ARRIVAL VEH B STA N AT 00:14:05  
SCHEDULED ARRIVAL 00:13:32

ARRIVAL VEH A STA S AT 00:14:47  
SCHEDULED ARRIVAL 00:14:04

ARRIVAL VEH B STA C AT 00:15:11  
SCHEDULED ARRIVAL 00:14:19

ARRIVAL VEH B STA S AT 00:16:09  
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ARRIVAL VEH A STA S AT 00:18:19  
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ARRIVAL VEH B STA C AT 00:18:44  
SCHEDULED ARRIVAL 00:17:06

ARRIVAL VEH B STA S AT 00:19:42  
SCHEDULED ARRIVAL 00:17:55

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 00:19:45  
SCHEDULED ARRIVAL 00:18:01

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 00:20:35  
SCHEDULED ARRIVAL 00:20:35

ARRIVAL VEH B STA N AT 00:20:53  
SCHEDULED ARRIVAL 00:21:03

ARRIVAL VEH A STA S AT 00:21:38  
SCHEDULED ARRIVAL 00:21:30

ARRIVAL VEH B STA C AT 00:22:03  
SCHEDULED ARRIVAL 00:21:51

ARRIVAL VEH B STA S AT 00:23:01  
SCHEDULED ARRIVAL 00:22:40

ARRIVAL VEH A STA N AT 00:23:04  
SCHEDULED ARRIVAL 00:22:40

ARRIVAL VEH A STA C AT 00:23:56  
SCHEDULED ARRIVAL 00:23:28

ARRIVAL VEH A STA N AT 00:23:04  
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ARRIVAL VEH A STA C AT 00:23:56  
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ARRIVAL VEH B STA C AT 00:25:20  
SCHEDULED ARRIVAL 00:24:38  
T=14:55:50  
TIME 14:55:50

ARRIVAL VEH B STA S AT 14:55:57  
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ARRIVAL VEH A STA N AT 14:56:00  
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SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 14:58:32  
SCHEDULED ARRIVAL 14:56:24

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 14:59:05  
SCHEDULED ARRIVAL 14:59:08

ARRIVAL VEH B STA S AT 14:59:47  
SCHEDULED ARRIVAL 14:59:31

ARRIVAL VEH A STA C AT 15:00:12  
SCHEDULED ARRIVAL 14:59:57

ARRIVAL VEH B STA N AT 15:02:37  
SCHEDULED ARRIVAL 15:00:40

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 15:02:42  
SCHEDULED ARRIVAL 15:00:45

SCHEDULE RE-ADJUSTED FOR VEHICLE A

VEH B IMPROPER BERTHING AT STATION C - UNDERSHOOT

ARRIVAL VEH A STA N AT 15:03:57  
SCHEDULED ARRIVAL 15:04:01

ARRIVAL VEH B STA C AT 15:09:34  
SCHEDULED ARRIVAL 15:03:22

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SCHEDULE RE-ADJUSTED FOR VEHICLE B

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SCHEDULED ARRIVAL 15:12:57

ARRIVAL VEH B STA S AT 15:14:48

SCHEDULED ARRIVAL 15:13:17

ARRIVAL VEH A STA C AT 15:15:13

SCHEDULED ARRIVAL 15:13:44

ARRIVAL VEH B STA N AT 15:16:09

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SCHEDULED ARRIVAL 15:19:03

ARRIVAL VEH A STA S AT 15:19:38

SCHEDULED ARRIVAL 15:19:12

VEH A IN SECTION 9 MORE THAN 30 SECONDS

ARRIVAL VEH B STA C AT 15:20:59

SCHEDULED ARRIVAL 15:19:50

VEH A IN SECTION 9 MORE THAN 30 SECONDS

ARRIVAL VEH B STA C AT 15:20:59  
SCHEDULED ARRIVAL 15:19:50

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ARRIVAL VEH B STA S AT 15:25:24  
SCHEDULED ARRIVAL 15:25:16

ARRIVAL VEH A STA C AT 15:25:50  
SCHEDULED ARRIVAL 15:23:56

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 15:26:46  
SCHEDULED ARRIVAL 15:26:27

ARRIVAL VEH A STA S AT 15:26:52  
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SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 15:51:16  
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VEH B IMPROPER BERTHING AT STATION N - UNDERSHOOT

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SCHEDULE RE-ADJUSTED FOR VEHICLE B

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SCHEDULED ARRIVAL 15:58:48

ARRIVAL VEH A STA N AT 15:58:50  
SCHEDULED ARRIVAL 15:58:20

ARRIVAL VEH A STA C AT 15:59:39  
SCHEDULED ARRIVAL 15:59:07

ARRIVAL VEH B STA N AT 16:00:04  
SCHEDULED ARRIVAL 16:00:05

ARRIVAL VEH A STA S AT 16:00:46  
SCHEDULED ARRIVAL 15:59:56

ARRIVAL VEH B STA C AT 16:01:09  
SCHEDULED ARRIVAL 16:00:54

ARRIVAL VEH B STA S AT 16:02:06  
SCHEDULED ARRIVAL 16:01:43

ARRIVAL VEH A STA N AT 16:02:09  
SCHEDULED ARRIVAL 16:01:06

ARRIVAL VEH A STA C AT 16:02:59  
SCHEDULED ARRIVAL 16:01:54

ARRIVAL VEH B STA N AT 16:03:18  
SCHEDULED ARRIVAL 16:02:54

ARRIVAL VEH A STA S AT 16:04:00  
SCHEDULED ARRIVAL 16:02:42

ARRIVAL VEH B STA C AT 16:04:24  
SCHEDULED ARRIVAL 16:03:41

ARRIVAL VEH B STA S AT 16:05:20

ARRIVAL VEH B STA C AT 16:04:24  
SCHEDULED ARRIVAL 16:03:41

ARRIVAL VEH B STA S AT 16:05:20  
SCHEDULED ARRIVAL 16:04:30

ARRIVAL VEH A STA N AT 16:05:24  
SCHEDULED ARRIVAL 16:03:53

ARRIVAL VEH A STA C AT 16:06:14  
SCHEDULED ARRIVAL 16:04:40

ARRIVAL VEH B STA N AT 16:07:16  
SCHEDULED ARRIVAL 16:05:40

ARRIVAL VEH A STA S AT 16:07:22  
SCHEDULED ARRIVAL 16:05:29

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 16:08:10  
SCHEDULED ARRIVAL 16:06:27

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 16:08:36  
SCHEDULED ARRIVAL 16:08:41

ARRIVAL VEH B STA S AT 16:09:27  
SCHEDULED ARRIVAL 16:09:09

ARRIVAL VEH A STA C AT 16:09:52  
SCHEDULED ARRIVAL 16:09:30

ARRIVAL VEH B STA N AT 16:10:49  
SCHEDULED ARRIVAL 16:10:20

ARRIVAL VEH A STA S AT 16:10:54  
SCHEDULED ARRIVAL 16:10:19

ARRIVAL VEH B STA C AT 16:11:42  
SCHEDULED ARRIVAL 16:11:07

ARRIVAL VEH A STA N AT 16:12:07  
SCHEDULED ARRIVAL 16:11:29

ARRIVAL VEH B STA S AT 16:12:58  
SCHEDULED ARRIVAL 16:11:56

ARRIVAL VEH A STA C AT 16:13:23  
SCHEDULED ARRIVAL 16:12:16

ARRIVAL VEH B STA N AT 16:14:08  
SCHEDULED ARRIVAL 16:13:06

ARRIVAL VEH A STA S AT 16:14:50  
SCHEDULED ARRIVAL 16:13:05

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 16:15:14  
SCHEDULED ARRIVAL 16:13:53

ARRIVAL VEH B STA S AT 16:16:11  
SCHEDULED ARRIVAL 16:14:40

MONOCAB SYSTEM

August 8, 1972

1:50 Both vehicles running manually.

3:45 Shut down operations.

TTI SYSTEM

July 28, 1972

2:16 PM Vehicle 2 third pass. RR wheel came off hub.

2:48 PM Vehicle 1 dispatched.

2:51 PM Vehicle 2 dispatched.

2:54 PM Two vehicles full automatic.

3:25 PM Stop operation of vehicles.

INATOR J E Sumner & E M PaddockO.D. READING ✓ MILESFILE Shirley & RachelHOUR METER READING ✓ HOURS7-28-72or Subject: activity Record for E.M. tests

## notations:

- 2:25:41 Begin Cycle two vehicle  
2:26:12 vehicle stop none lane, one in B. Power turned off.  
2:31:05 Power on resume cycle one vehicle main lane to A  
2:33:15 resume cycle of both vehicles  
2:35:40 one in A one in B.  
~~2:35:42~~ - Begin next cycle  
~~2:40:~~ - all times above this point should be adjusted upward 7:13 sec  
2:43:12 Start <sup>next</sup> cycle  
2:48:18 " next cycle  
2:53:32 - " " "  
2:55:29 - Vehicle stopped 50 ft short of A.  
2:56:00 - " continues on cycle  
2:56:27 - Begin next cycle  
2:57:18 - Vehicle entering "B" stopped short (30') but other vehicle remained on cycle  
2:58:40 - fuses out to inspect stopped vehicle  
3:01:12 - fuses in - power on  
3:02:30 - ~~begin next cycle~~ continue cycle  
3:00:32 - Begin next cycle  
3:12:27 - Begin " "  
3:17:36 - Cycle complete - vehicles & power shut down per request of APC.  
4:34:20 - Fuses in - power on, main lane  
4:37:12 - Begin 1st Run  
4:40:18 - Power up, power up station lane  
4:44:10 - two vehicle cycle begun  
4:45:31 - vehicle stops at fire  
4:46:03 - Fuses pulled - power out.  
4:46:35 - Fuses in - power on.  
" 1/2 cycle.

Form STS 5

2  
HLS, M. CONWAY

READY

TRANSFER TO COMPUTER SYSTEM START OF

POST INITIATION

VEHICLE ARRIVAL AT Y

CONFIGURATION CHANGE

VEHICLE(S) A

VEHICLE(S) B

VEHICLE(S) C

VEHICLE(S) D

VEHICLE(S) E

VEHICLE(S) F

VEHICLE(S) G

VEHICLE(S) H

VEHICLE(S) I

VEHICLE(S) J

VEHICLE(S) K

VEHICLE(S) L

VEHICLE(S) M

VEHICLE(S) N

VEHICLE(S) O

VEHICLE(S) P

VEHICLE(S) Q

VEHICLE(S) R

VEHICLE(S) S

VEHICLE(S) T

VEHICLE(S) U

VEHICLE(S) V

VEHICLE(S) W

VEHICLE(S) X

VEHICLE(S) Y

VEHICLE(S) Z

VEHICLE(S) AA

VEHICLE(S) AB

VEHICLE(S) AC

VEHICLE(S) AD

VEHICLE(S) AE

VEHICLE(S) AF

VEHICLE(S) AG

VEHICLE(S) AH

VEHICLE(S) AI

VEHICLE(S) AJ

VEHICLE(S) AK

VEHICLE(S) AL

VEHICLE(S) AM

VEHICLE(S) AN

VEHICLE(S) AO

VEHICLE(S) AP

VEHICLE(S) AQ

VEHICLE(S) AR

VEHICLE(S) AS

VEHICLE(S) AT

VEHICLE(S) AU

VEHICLE(S) AV

VEHICLE(S) AW

VEHICLE(S) AX

VEHICLE(S) AY

VEHICLE(S) AZ

VEHICLE(S) BA

VEHICLE(S) BB

VEHICLE(S) BC

VEHICLE(S) BD

VEHICLE(S) BE

VEHICLE(S) BF

VEHICLE(S) BG

VEHICLE(S) BH

VEHICLE(S) BI

VEHICLE(S) BJ

VEHICLE(S) BK

VEHICLE(S) BL

VEHICLE(S) BM

VEHICLE(S) BN

VEHICLE(S) BO

VEHICLE(S) BP

VEHICLE(S) BQ

VEHICLE(S) BR

VEHICLE(S) BS

VEHICLE(S) BT

VEHICLE(S) BU

VEHICLE(S) BV

VEHICLE(S) BW

VEHICLE(S) BX

VEHICLE(S) BY

VEHICLE(S) BZ

VEHICLE(S) CA

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA C AT 14:11:11

SCHEDULED ARRIVAL 14:11:11

ARRIVAL VEH A STA N AT 14:11:11

SCHEDULED ARRIVAL 14:11:11

ARRIVAL VEH B STA S AT 14:11:11

SCHEDULED ARRIVAL 14:11:11

ARRIVAL VEH A STA C AT 14:11:11

SCHEDULED ARRIVAL 14:11:11

ARRIVAL VEH B STA N AT 14:11:11

SCHEDULED ARRIVAL 14:11:11

ARRIVAL VEH A STA S AT 14:11:11

SCHEDULED ARRIVAL 14:11:11

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA N AT 14:11:11

SCHEDULED ARRIVAL 14:11:11

VEH B IMPROPER FEATHERING AT STATION C - UNDERSHOOT

ARRIVAL VEH B STA C AT 14:11:11

SCHEDULED ARRIVAL 14:11:11

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 14:11:11

SCHEDULED ARRIVAL 14:11:11

ARRIVAL VEH A STA C AT 14:11:11

SCHEDULED ARRIVAL 14:11:11

SCHEDULE RE-ADJUSTED FOR VEHICLE A

T=14:30:00

TIME 14:30:00

ARRIVAL VEH B STA N AT 14:30:07

SCHEDULED ARRIVAL 14:29:31

ARRIVAL VEH A STA S AT 14:30:12

SCHEDULED ARRIVAL 14:29:34

ARRIVAL VEH B STA C AT 14:30:58

SCHEDULED ARRIVAL 14:30:19

ARRIVAL VEH A STA N AT 14:31:49

SCHEDULED ARRIVAL 14:30:45

ARRIVAL VEH B STA S AT 14:32:31

SCHEDULED ARRIVAL 14:31:07

ARRIVAL VEH A STA C AT 14:32:56

SCHEDULED ARRIVAL 14:31:32

ARRIVAL VEH B STA N AT 14:33:53

SCHEDULED ARRIVAL 14:32:18

ARRIVAL VEH A STA S AT 14:33:58

SCHEDULED ARRIVAL 14:32:21

ARRIVAL VEH B STA C AT 14:34:44

SCHEDULED ARRIVAL 14:33:05

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 14:35:34

SCHEDULED ARRIVAL 14:33:31

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 14:37:51

SCHEDULED ARRIVAL 14:35:40

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 14:38:16

SCHEDULED ARRIVAL 14:36:23

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA N AT 14:39:14

SCHEDULED ARRIVAL 14:37:09

ARRIVAL VEH A STA S AT 14:39:19

SCHEDULED ARRIVAL 14:37:15

ARRIVAL VEH B STA C AT 14:40:04

SCHEDULED ARRIVAL 14:37:56

ARRIVAL VEH A STA N AT 14:40:14

SCHEDULED ARRIVAL 14:40:10

ARRIVAL VEH B STA S AT 14:43:54  
SCHEDULED ARRIVAL 14:43:55

ARRIVAL VEH A STA C AT 14:43:50  
SCHEDULED ARRIVAL 14:43:16

ARRIVAL VEH B STA N AT 14:43:54  
SCHEDULED ARRIVAL 14:43:55

ARRIVAL VEH A STA S AT 14:43:55  
SCHEDULED ARRIVAL 14:43:55

ARRIVAL VEH B STA C AT 14:43:50  
SCHEDULED ARRIVAL 14:43:53

ARRIVAL VEH A STA N AT 14:43:54  
SCHEDULED ARRIVAL 14:43:15

SCHEDULE RE-ADJUSTED FOR VEHICLE A

CLASS 3 FAILURE - VEHICLE A

TRANSFER 72 COMPUTER SYSTEM START UP

RESTRICTIONS?  
NEW CONFIGURATION?  
ELECTRIFY? Y  
BEGIN ELECTRIFICATION

READY

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 14:46:01  
SCHEDULED ARRIVAL 14:47:17

ARRIVAL VEH A STA N AT 14:46:04  
SCHEDULED ARRIVAL 14:47:03

ARRIVAL VEH A STA C AT 14:46:56  
SCHEDULED ARRIVAL 14:47:51

ARRIVAL VEH B STA N AT 14:49:09  
SCHEDULED ARRIVAL 14:48:28

ARRIVAL VEH A STA S AT 14:49:52  
SCHEDULED ARRIVAL 14:48:40

ARRIVAL VEH B STA C AT 14:50:16  
SCHEDULED ARRIVAL 14:49:15

ARRIVAL VEH A STA N AT 14:51:14  
SCHEDULED ARRIVAL 14:49:50

TRANSFER 72 COMPUTER SYSTEM START UP

RESTRICTIONS?  
NEW CONFIGURATION?  
ELECTRIFY? Y  
BEGIN ELECTRIFICATION

READY

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA S AT 14:53:47  
SCHEDULED ARRIVAL 14:52:45

ARRIVAL VEH A STA N AT 14:53:50  
SCHEDULED ARRIVAL 14:51:48

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH A STA C AT 14:54:41  
SCHEDULED ARRIVAL 14:54:39

ARRIVAL VEH B STA N AT 14:54:55  
SCHEDULED ARRIVAL 14:53:56

ARRIVAL VEH A STA S AT 14:55:41  
SCHEDULED ARRIVAL 14:55:32

ARRIVAL VEH B STA C AT 14:56:56  
SCHEDULED ARRIVAL 14:54:42

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 14:57:47  
SCHEDULED ARRIVAL 14:56:46

ARRIVAL VEH B STA S AT 14:58:27  
SCHEDULED ARRIVAL 14:57:54

ARRIVAL VEH A STA C AT 14:59:53  
SCHEDULED ARRIVAL 14:57:29

ARRIVAL VEH B STA N AT 14:59:56  
SCHEDULED ARRIVAL 14:59:55

ARRIVAL VEH A STA S AT 14:59:19  
SCHEDULED ARRIVAL 14:59:17

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 15:00:42  
SCHEDULED ARRIVAL 14:59:50

ARRIVAL VEH A STA N AT 15:00:12  
SCHEDULED ARRIVAL 15:00:54

SCHEDULE RE-ADJUSTED FOR VEHICLE A

VEH B IN SECTION 6 MORE THAN 30 SECONDS

ARRIVAL VEH B STA S AT 15:00:53  
SCHEDULED ARRIVAL 15:00:56

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 15:02:18  
SCHEDULED ARRIVAL 15:02:11

ARRIVAL VEH B STA N AT 15:03:16  
SCHEDULED ARRIVAL 15:03:11

ARRIVAL VEH A STA S AT 15:03:22  
SCHEDULED ARRIVAL 15:03:01

ARRI

59 Total  
2 veh. Loops

F. A. L. L.

July 28

MONOCAB

July 28, 1972

2:00 PM Both vehicles running automatic.  
2:15 PM Both vehicles stopped.  
2:19 PM Both vehicles running automatic.  
2:43 PM Both vehicles stopped.  
2:54 PM Both vehicles running automatic.  
3:50 PM Both vehicles down (loss of communications).  
4:00 PM Both vehicles running automatic.  
4:15 PM System shut down.

TTI SYSTEM

July 26, 1972

14:02 Two vehicles full automatic operation.  
15:00 Continue of full automatic.  
16:04 Shutdown.



to E W Pascher

O.D. READING

MILES

to Shirley & Rachel

HOURLY METER READING

HOURS

to 24-72 (Wed)

Activity Record for F.M.I. Tests

cycle ; A-B (1min, 08 sec) ; stop (1min, 30 sec) ; B to E (44 sec) ; stop (9 sec) ; E to A (1min, 34 sec) ; stop (2 sec)

SEE PAGE 2

Long cycle times are generally a result of long station stops before beginning next cycle.

Notes:

Shirley B Rachel in A

1:52:19 Begin 1st cycle  
2:02:27 " 2nd "  
2:05:33 " " "  
2:06:20 - the vehicle at A moved in & out several times.  
2:07:00 Vehicle moved from A in continuance of cycle  
2:09:20 Begin 3rd cycle  
2:10:10 Vehicle at A scheduled for long station stop  
2:13:34 " " " moved in continuance of cycle but stopped so long  
2:15:20 Departed vehicle moved in continuance of cycle  
2:17:30 Begin 4th cycle  
2:20:18 Begin 5th cycle  
2:24:30 Vehicle at A scheduled for long stop since other vehicle stopped ahead of it  
2:25:30 Vehicle moved back from B and then into B.  
2:26:24 Both vehicles resume cycle  
2:28:13 Begin 6th cycle  
2:37:12 " 7th cycle  
2:40:12 " 8th "  
2:42:13 Vehicle enters A and stops for long station stop  
2:45:12 Vehicle moved from A and stopped after 50 ft.  
2:47:10 Vehicle moved 50 ft. further and returned to A  
2:48:32 Both vehicles resume cycle  
3:01:12 Begin 9th cycle  
3:09:38 Begin 10th cycle  
3:12:12 Vehicle at A scheduled for a long station stop  
3:15:00 resume cycle  
3:17:32 Begin 11th cycle  
3:22:32 Begin 12th cycle  
3:28:50 " 13th cycle  
3:34:13 " 14th "  
3:39:17 " 15th "  
3:45:12 " 16th "  
3:50:32 " 17th cycle  
3:54:30 Running Complete - power down

Form SPS 5

DRIVER E. M. Padlock

O.D. READING \_\_\_\_\_ MILES

DRIVER Chirley & Rachel

HOURLY METER READING \_\_\_\_\_ HOURS

7-26-72

of Subject: Activity Record for EMI Test.

ations:

The following cycle breakdown was observed while riding the vehicle

3:22:32	leave B	B to E	44s
3:23:16	arrive E	stop	9s
3:23:25	leave E	E to A	1 min, 35s
3:25:00	arrive A	stop	1 min, 25s - exceptionally long stop
3:26:20	leave A	A to B	59s
3:27:21	arrive B	stop	1 min, 29s
3:28:50	leave B	B to C	44s
3:29:34	arrive C	stop	10s
3:29:44	leave C	C to A	1 min, 30s
3:31:16	arrive A	stop	18s
3:31:34	leave A	A to B	1 min, 03s
3:32:37	arrive B	stop	1 min, 36s
3:34:13	leave B	B to E	43s
3:34:54	arrive E	stop	8s
3:35:05	leave E	E to A	1 min, 35s
3:36:40	arrive A	stop	7s
3:37:49	leave A	A to B	1 min, 02s
3:39:17	arrive B	stop	1 min, 29s

B to E	stop	E to A	stop	A to B	stop
44s	9s	1 min, 35s	1 min, 25s	59s	1 min, 29s
44s	10s	1 min, 30s	18s	1 min, 03s	1 min, 36s
43s	8s	1 min, 35s	7s	1 min, 02s	1 min, 29s
44s	5s	1 min, 30s	13s	1 min, 02s	1 min, 29s

Dashavegor/Bewit

8

## RESTRICTIONS?

## CONFIGURATION CHANGE

CLASS 2 FAILURE - VEHICLE A

CLASS 2 FAILURE - VEHICLE B

§

FINTHRU(FOR A,B,E,F,G,P,Q ONLY!)?

CONFIGURATION (A-V): A

VEHICLE(S) (A,B,2): 2

ACCEPTED

CONFIGURATION	MODE	OPERATING VEHICLE
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
26	26	26
27	27	27
28	28	28
29	29	29
30	30	30
31	31	31
32	32	32
33	33	33
34	34	34
35	35	35
36	36	36
37	37	37
38	38	38
39	39	39
40	40	40
41	41	41
42	42	42
43	43	43
44	44	44
45	45	45
46	46	46
47	47	47
48	48	48
49	49	49
50	50	50
51	51	51
52	52	52
53	53	53
54	54	54
55	55	55
56	56	56
57	57	57
58	58	58
59	59	59
60	60	60
61	61	61
62	62	62
63	63	63
64	64	64
65	65	65
66	66	66
67	67	67
68	68	68
69	69	69
70	70	70
71	71	71
72	72	72
73	73	73
74	74	74
75	75	75
76	76	76
77	77	77
78	78	78
79	79	79
80	80	80
81	81	81
82	82	82
83	83	83
84	84	84
85	85	85
86	86	86
87	87	87
88	88	88
89	89	89
90	90	90
91	91	91
92	92	92
93	93	93
94	94	94
95	95	95
96	96	96
97	97	97
98	98	98
99	99	99
100	100	100

S

A, B

OK? Y

READY

ELECTRIFY? Y

## BEGIN ELECTRIFICATION

READY

ARRIVAL VEH B STA N AT 00:02:12

SCHEDULED ARRIVAL 00:02:33

VEHICLE A EMERGENCY STOP AT STATION S

CLASS 3 FAILURE - VEHICLE A

ARRIVAL VEH A STA S AT 00:04:29

SCHEDULED ARRIVAL 00:01:43

SCHEDULE RE-ADJUSTED FOR VEHICLE A

VEH B IMPROPER BERTHING AT STATION C - OVERSHOOT

ARRIVAL VEH B STA C AT 00:05:25

SCHEDULED ARRIVAL 00:03:20

SCHEDULE RE-ADJUSTED FOR VEHICLE B

T=

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 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039

SCHEDULE RE-ADJUSTED FOR VEHICLE A

VEH B IMPROPER BERTHING AT STATION C - OVERSHOOT

ARRIVAL VEH B STA C AT 01:05:25  
SCHEDULED ARRIVAL 01:05:20

SCHEDULE RE-ADJUSTED FOR VEHICLE B

T=15  
ARRIVAL VEH A STA N AT 00:06:21  
SCHEDULED ARRIVAL 00:05:48  
T=15  
ARRIVAL VEH B STA S AT 00:07:04  
SCHEDULED ARRIVAL 00:06:23  
T=15:30:00  
TIME 17:07:27

ARRIVAL VEH A STA C AT 17:07:42  
SCHEDULED ARRIVAL 21:06:35  
T=15:31:00  
TIME 15:31:00

ARRIVAL VEH B STA N AT 15:31:33  
SCHEDULED ARRIVAL 15:29:33

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 15:31:51  
SCHEDULED ARRIVAL 15:29:23

SCHEDULE RE-ADJUSTED FOR VEHICLE A

VEHICLE B EMERGENCY STOP AT STATION C

VEH B IN SECTION 2 MORE THAN 30 SECONDS

ARRIVAL VEH B STA C AT 15:38:43  
SCHEDULED ARRIVAL 15:32:17

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 15:39:17  
SCHEDULED ARRIVAL 15:33:05

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 15:40:00  
SCHEDULED ARRIVAL 15:39:41

ARRIVAL VEH A STA C AT 15:40:40  
SCHEDULED ARRIVAL 15:40:06

ARRIVAL VEH B STA N AT 15:41:33  
SCHEDULED ARRIVAL 15:40:52

VEH A IMPROPER BERTHING AT STATION S - UNDERSHOOT

MONOCAB

July 26, 1972

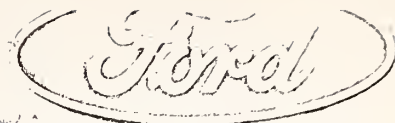
12:53 Guideway power still up.  
2:10 Both vehicles running in automatic.  
2:30 Both vehicles stopped.  
2:37 Both vehicles running in automatic.  
2:40 Both vehicles stopped.  
2:45 Both vehicles running in automatic.  
2:58 Both vehicles stopped.  
3:02 Both vehicles running in automatic.  
3:04 Both vehicles stopped.  
3:15 Both vehicles running in automatic.

TTI SYSTEM

July 27, 1972

13:47 Two vehicles full automatic.

16:25 Stopped two vehicles full automatic.

DRIVER E. W. PaddenO.D. READING                      MILESTESTER E. W. Padden & L. J. LivelyHOUR METER READING                      HOURSDATE 7-27-73TEST SUBJECT: Activity for EMI Tests

## REMARKS:

3:25:42 - Continue cycle.  
3:27:43 - Begin next cycle (5th)  
3:31:45 - " " " (6th)  
3:33:45 - Power shut down - Vehicle on main lane hit a speed trap -  
3:34:40 - Fuse in - power on and vehicle moved to station A.  
3:35:17 - Resume cycle  
3:37:15 - Begin 7th cycle  
3:39:00 - Power on main lane shut down - speed trap -  
3:39:10 - Power up and cycle continued  
3:39:58 - Vehicle at B shut. vehicle at E did not move - required  
3:42:16 - Vehicle at E resumed cycle  
3:47:30 - Power down fuse out - to inspect vehicle required  
3:50:21 - Fuse in - Power up and cycle continued  
3:52:10 - Power down  
3:52:12 - Power up  
3:54:04 - Begin 8th cycle  
3:58:40 - " 9th cycle  
4:02:32 - " 10th "  
4:06:31 - " 11th "  
4:11:31 - Cycle complete - Fuse out to check vehicle (off road)  
4:16:45 - Fuse in, power on - resume  
4:18:48 - Cycle complete  
4:19:00 - Begin 12th cycle  
4:23:15 - Cycle complete

SCHEDULED ARRIVAL 15:32:20

ARRIVAL VEH B STA N AT 15:34:30  
SCHEDULED ARRIVAL 15:33:08

ARRIVAL VEH A STA S AT 15:34:35  
SCHEDULED ARRIVAL 15:33:15

ARRIVAL VEH B STA C AT 15:35:24  
SCHEDULED ARRIVAL 15:33:55

ARRIVAL VEH A STA N AT 15:36:14  
SCHEDULED ARRIVAL 15:34:25

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 15:36:54  
SCHEDULED ARRIVAL 15:34:44

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA C AT 15:37:21  
SCHEDULED ARRIVAL 15:37:03

ARRIVAL VEH B STA N AT 15:38:36  
SCHEDULED ARRIVAL 15:38:14

ARRIVAL VEH A STA S AT 15:38:41  
SCHEDULED ARRIVAL 15:37:52

ARRIVAL VEH B STA C AT 15:39:30  
SCHEDULED ARRIVAL 15:39:01

ARRIVAL VEH A STA N AT 15:40:20  
SCHEDULED ARRIVAL 15:39:02

ARRIVAL VEH B STA S AT 15:40:59  
SCHEDULED ARRIVAL 15:39:50

ARRIVAL VEH A STA C AT 15:41:25  
SCHEDULED ARRIVAL 15:39:49

VEH B IN SECTION 7 MORE THAN 30 SECONDS

ARRIVAL VEH B STA N AT 15:44:22  
SCHEDULED ARRIVAL 15:40:58

ARRIVAL VEH A STA S AT 15:44:23  
SCHEDULED ARRIVAL 15:40:36

SCHEDULE RE-ADJUSTED FOR VEHICLE A

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH B STA C AT 15:45:15  
SCHEDULED ARRIVAL 15:45:13

ARRIVAL VEH A STA N AT 15:45:52  
SCHEDULED ARRIVAL 15:45:43

ARRIVAL VEH B STA S AT 15:46:33  
SCHEDULED ARRIVAL 15:46:06

ARRIVAL VEH A STA C AT 15:46:58  
SCHEDULED ARRIVAL 15:46:30

SCHEDULED ARRIVAL 15:46:06

ARRIVAL VEH A STA C AT 15:46:58

SCHEDULED ARRIVAL 15:46:30

ARRIVAL VEH B STA N AT 15:49:13

SCHEDULED ARRIVAL 15:47:15

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA S AT 15:49:18

SCHEDULED ARRIVAL 15:47:17

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA C AT 15:50:06

SCHEDULED ARRIVAL 15:50:04

ARRIVAL VEH A STA N AT 15:50:55

SCHEDULED ARRIVAL 15:50:37

ARRIVAL VEH B STA S AT 15:51:34

SCHEDULED ARRIVAL 15:50:57

ARRIVAL VEH A STA C AT 15:51:59

SCHEDULED ARRIVAL 15:51:24

ARRIVAL VEH B STA N AT 15:53:42

SCHEDULED ARRIVAL 15:52:07

ARRIVAL VEH A STA S AT 15:53:47

SCHEDULED ARRIVAL 15:52:12

ARRIVAL VEH B STA C AT 15:54:36

SCHEDULED ARRIVAL 15:52:54

SCHEDULE RE-ADJUSTED FOR VEHICLE B

ARRIVAL VEH A STA N AT 15:55:27

SCHEDULED ARRIVAL 15:53:22

SCHEDULE RE-ADJUSTED FOR VEHICLE A

ARRIVAL VEH B STA S AT 15:55:35

SCHEDULED ARRIVAL 15:55:33

ARRIVAL VEH A STA C AT 15:56:17

SCHEDULED ARRIVAL 15:56:17

ARRIVAL VEH B STA N AT 15:56:59

SCHEDULED ARRIVAL 15:56:49

ARRIVAL VEH A STA S AT 15:57:20

SCHEDULED ARRIVAL 15:57:13

ARRIVAL VEH B STA C AT 15:57:59

SCHEDULED ARRIVAL 15:57:36

ARRIVAL VEH A STA N AT 15:58:49

SCHEDULED ARRIVAL 15:58:25

ARRIVAL VEH B STA S AT 15:59:29

SCHEDULED ARRIVAL 15:58:24

ARRIVAL VEH A STA C AT 15:59:54

MONOCAB SYSTEM

July 27, 1972

2:04 PM Both vehicles running automatic.  
2:18 PM Both vehicles stopped.  
2:23 PM Both vehicles running automatic.  
3:30 PM Both vehicles stopped.  
3:45 PM One vehicle running automatic.  
3:48 PM Both vehicles stopped.  
3:53 PM Both vehicles running automatic.  
4:05 PM Both vehicles and guideway power off for day.

HE 18.5 :A37  
no. DOT-TSC-  
UMTA-73-15

V.6

BORROW

Form DOT F 17  
FORMERLY FORM E

DOT LIBRARY



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